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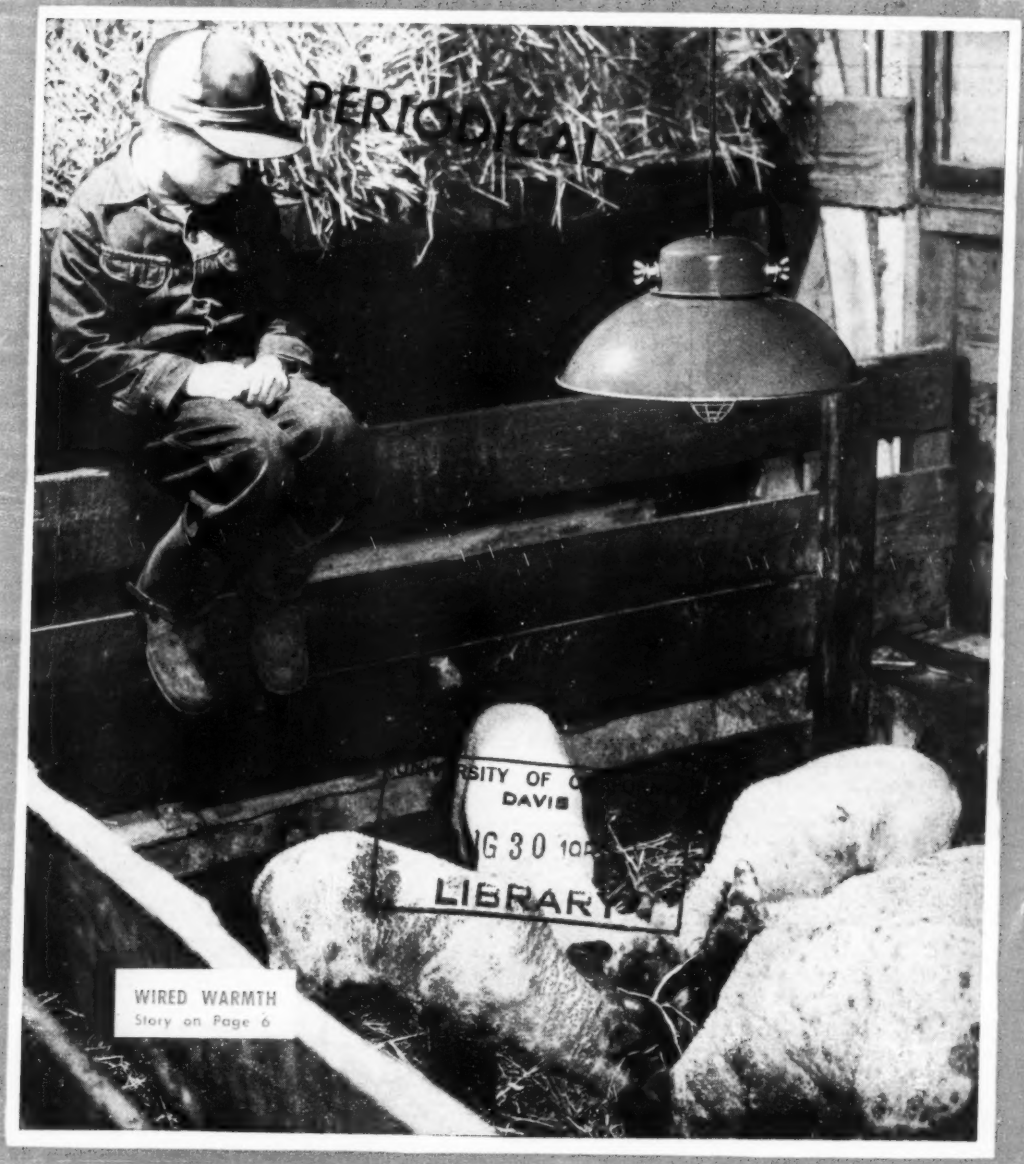
No.1

ELECTRICITY ON THE FARM *Magazine*

JANUARY, 1954

Bulk Cooling's Coming Fast
Cut Kitchen Time in Half . . .
Cattle Feeding Conveyors . . .
New Trends In Laundering
Fattening Broilers With Air

27th Year



A CASE-SHEPPERD-MANN PUBLICATION

Ask for G-E Motors and Control on all Electrified Farm Equipment you buy!

GENERAL ELECTRIC FarmNews

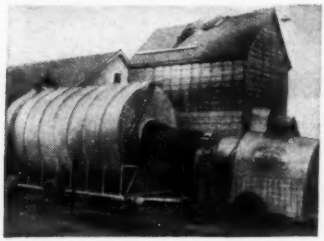
Ask for G-E Motors and Control on all Electrified Farm Equipment you buy!

MORE POWER TO THE AMERICAN FARMER through more electricity on the farm

SILO UNLOADER SAVES FARMER TIME AND WORK

"PUSH BUTTON" DRYING FOR 70,000 BUSHELS OF CORN

Dryer also makes early harvest possible, preserves top quality



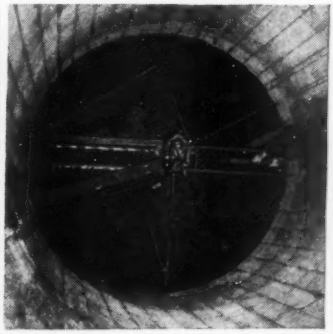
Mr. Campe and his labor saving grain dryer.

Mr. Rollo Campe, Route 2, Fairmont, Minnesota found it no trouble at all to dry over 70,000 bushels of shelled corn with his automatic crop dryer. Says Mr. Campe:

"I like my drying system because I can harvest my corn at an earlier date when it's at its best. Then I can preserve this quality by removing the moisture, and the corn is safe for storage over a long period of time. The push button operation of the dryer makes all my work simple and easy."

Mr. Campe's Dryer is powered by a dependable G-E motor. For more information, check "Crop Dryer" on the coupon.

Unloads enough silage in 20 minutes to feed 100 cattle, saves an hour daily in feeding chores



Above photo shows how unloader keeps walls clean . . . silage smooth and level.

Mr. Jacox just presses a button and silage pours out in perfect feeding condition.

Mr. Ralph Jacox of DeKalb, Illinois finds that his silo unloader gives him all the feed he needs for his cattle quickly and efficiently. Says Mr. Jacox, "My silo unloader chops my silage fine and saves me about one hour a day in my feeding chores. The unloader throws down in 20 minutes enough grass silage to feed my 100 feeder cattle."

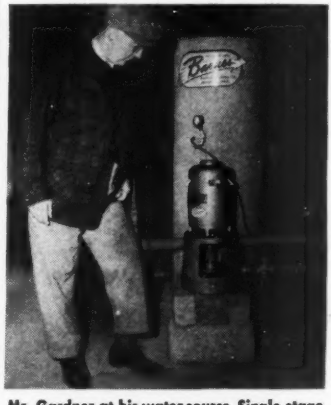
Throwing down silage is hazardous, heavy work, but with an unloader, no matter how frozen or hard packed silage is, it still comes out quickly and as fine as it was when it was blown into the silo. The unloader has few parts, assuring maximum use, and operates in any out-of-round silos. It is powered with a dependable G-E motor. For more information, check silo unloader on coupon.

AUTOMATIC WATER SYSTEM FOR LIVESTOCK AND GARDEN FREES OHIO FARMER FOR OTHER CHORES

Mr. R. B. Gardner of Mansfield, Ohio uses an automatic pumping system to keep fresh water before his livestock at all times, and also to irrigate his garden, while he is left free to do other work. Says Mr. Gardner:

"In my program of feeding both beef and hogs, there is always drinking water in front of my livestock. Water is the cheapest feed I can give them, and with running water piped right to stock tanks and waterers, there is no tendency on anyone's part to skimp on water or forget to keep the tanks filled. As for my garden, automatic irrigation saves me time and trouble, and gives me better results, too."

Mr. Gardner's water comes from a 40-foot lift, deep well pump powered by a dependable G-E 1½ hp motor. For more information, check Water Systems on coupon.



Mr. Gardner at his water source. Single stage pump has 1720 gal. per hour capacity.

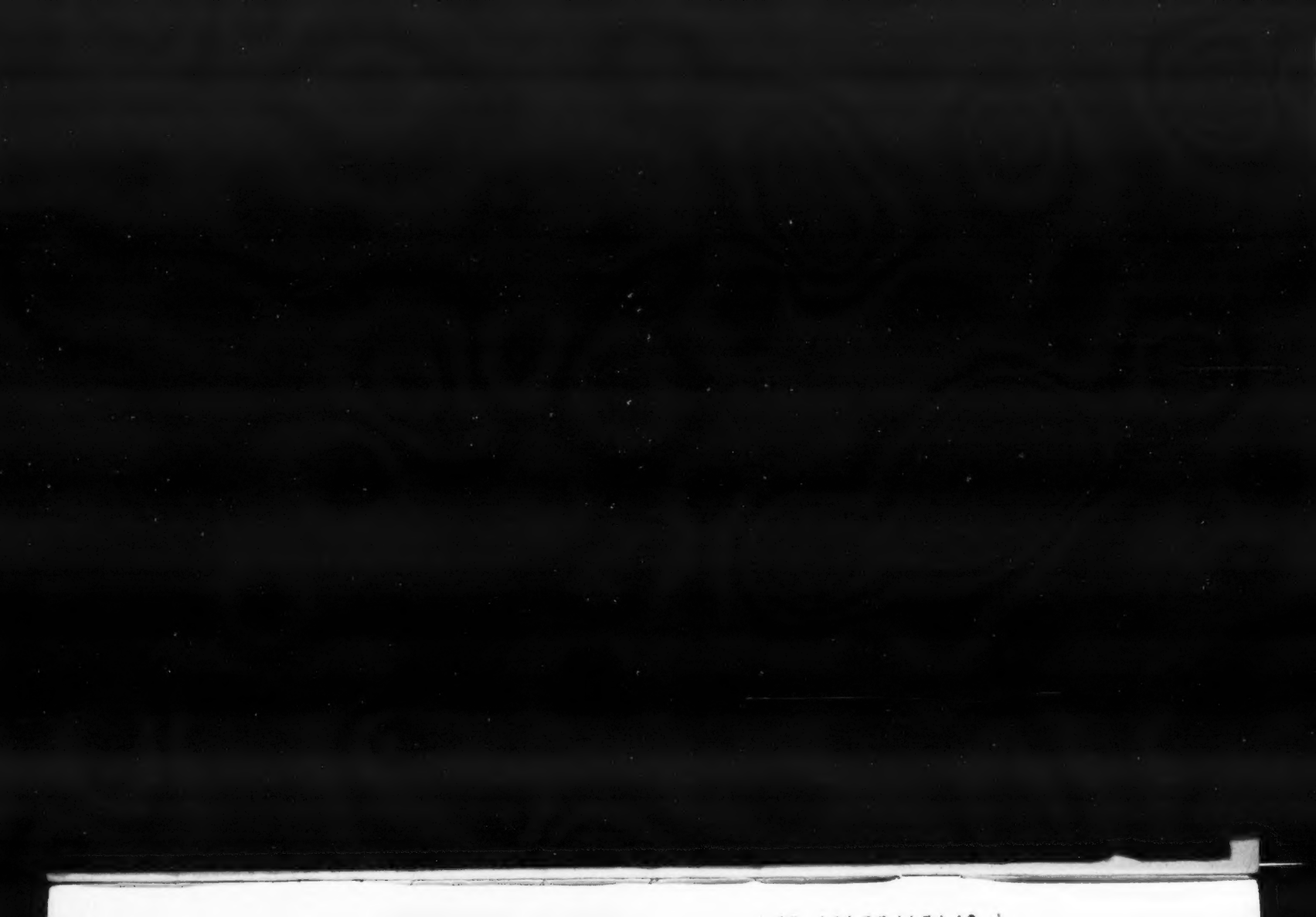
GENERAL ELECTRIC COMPANY
Section 671-32D, Schenectady 5, N. Y.
I would like additional information on the following equipment.

- ☐ Silo Unloader
- ☐ Water Systems
- ☐ Crop Dryer
- ☐ How To Choose Your Motor

NAME_____

ADDRESS_____

CITY_____ STATE_____



Editor's Chat

BE LAZY

We just ran across something that appeals to us and would like to share it with you. Seems that some learned professor has just discovered what most of us knew all along—that lazy people are the ones who produce most of the bright ideas. They are the ones who think up the inventions to save labor and make life easier and more pleasant for the rest of us.

Sir Isaac Newton was loafing under an apple tree one nice afternoon when an apple fell onto his head. Since then we have all adopted the idea of gravity and find it very useful. You couldn't sit down and rest if it were not for gravity. What folks did before its discovery we do not know, but thank goodness Newton discovered it before our time.

So, and this is especially for any of you teenagers who flatter us by reading this part of the magazine, if you are resting and loafing when someone prods you to help with the chores, just remind them that most of our great inventions were evolved by someone at rest and undisturbed by menial labor. And if they just leave you alone a while you may come up with something that will make the work so close at hand entirely unnecessary.

FIRE FLASH

Just a reminder, and we all need reminders now and then. Winter is the time of year when many farm fires occur and most of them could be prevented IF we only take the time and trouble to apply the remedies we already know and take precautions that have been listed and repeated so many times. Spring is the time for thunder showers and lightning, yet how few of us check the lightning rods and grounds before that season arrives. If this brief reminder sparks but one man to check his wiring and fuses and grounds and thus prevents but one farm fire, it will have been worth the space it takes and your time in following this suggestion.

Prevent your next fire NOW.

HAPPY NEW YEAR

Here we are closing the door on 1953 and staring '54 right in the face. No use crying over spilled milk or looking back with regrets, it won't help, but stepping forward bravely to tackle whatever is ahead will pay good dividends. We can wish you nothing better than courage and hope and self assurance that you can win over whatever difficulties lie ahead. Be encouraged by the knowledge that you have more information, horsepower, methods and materials to help you than anyone before your time. With tools and skill to use them almost anything is not too difficult to be accomplished.

We cannot recall seeing a picture of Janus the Roman god of doors and gates for whom our month of January is named, but he is described as having two faces, one looking back and the other forward. We often wonder what kind of an expression he had on each face. We wonder too what expression you and I would paint or model if we were an artist assigned that task. Just for fun, take a moment to think that over and try and decide what posture and what expression you would use for each side. We hope you choose a cheerful, brave, fighting one for the forward looking side. I guess it doesn't make much difference what the other looks like, or does it?

Anyhow, a very Happy New Year to all of you from all of us.

A BUYING GUIDE

Due to your intense interest last year in the Buying Guide we have brought it up to date and placed it in the back of this issue again for your convenience. Consult it when you are planning to buy any farm electrical equipment.

Also available to you without obligation is a copy of our 1953 editorial index. If you would like a copy, simply drop us a card. Be sure to include your name and address.

Jim Ridout

ELECTRICITY ON THE FARM *Magazine*

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Cattle Feeding Conveyors

Standard Units Mechanize Silage Handling

By T. P. HILSON

Many dairymen see keeping more cows with the same amount of labor, or less, as one of their best hopes for a sound economic future. And a lot of them are doing things about it. In most dairying areas you'll see steps being taken which go a long way toward cutting the hours of feeding, cleaning, and milking. Larger herds are becoming practicable with no greater labor outlay than before.

All dairy chores are affected. Pipeline milkers and bulk tanks, of which there are more all the time, are proving their worth. More and better mechanical means for cleaning barns, loafing sheds, and milking parlors are taking a lot of drudgery out of dairying. And now, cutting the time required for winter feeding is the step many dairymen are taking.

They're doing it by giving their dairy lay-outs more attention, by locating silos, loafing, and milking quarters so that more efficient operation is possible, and by installing special equipment to cut the man-hours required.

J. William Antilla, at Willow Grove in Cowlitz County, Oregon, for example, has gone in for mechanical feeding equipment. With an endless chain type conveyor which handles roughage, he fed 3,000 pounds of silage, daily, to 102 head of stock throughout last winter.

The chain fills the 200 foot long feed manger in Antilla's loafing shed in three-quarters of an hour. In previous years, getting that amount of feed out of the silo and into the manger involved three separate handlings. It took one man an average of six hours a day. Constrast that with his present system. Silage still is dug out of the silo by hand, but it's thrown on the self-feeder and that's that. Feeding the herd now takes one man 45 minutes a day! A silo unloader will be added later to make the feeding entirely mechanical.

In case you've never seen one of these self-feeders, here's what they're like: Two parallel, endless steel chains, with feed-moving flights between them at regular intervals, push feed along through a wooden channel. The wooden channel is in the center of, and about 16" above, the floor of the feed bunk. The bottom of the channel is open, so the feed falls into the bunk. As it piles up to the bottom of the channel, fresh feed is carried farther along until finally the entire bunk has been filled. The feed chain moves slowly, gear ratio from motor to chain drive shaft being 15 to 1.

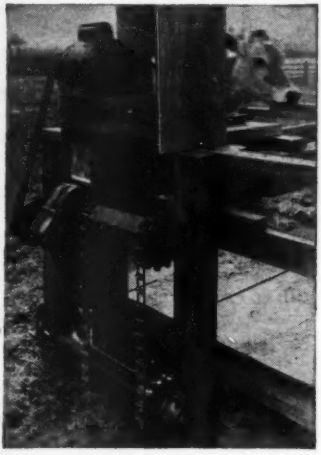
Antilla feeds silage to his herd in the morning and chopped hay at night. "If I'd had any idea of putting one of these in when we built, I'd have fixed the hay storage so we could feed hay with the chain, too," he says. As it is, chopped hay-feeding in his loafing shed is comparatively easy anyway. The hay is stacked all the way along behind the manger. Throwing it over by hand doesn't take long.

What does a rig like his cost? The price varies somewhat, of course, with the design of the structure in which it is used. Average cost for the mechanical equipment including motor, sprockets, axles, bearings, gear reducer and chain, runs around $6 per foot of feeder. The cost of operation is small. "I've fig-

ured it pretty closely," Antilla says, "and all indications are that the feeder will pay for itself in a year's time."

Antilla still has to throw silage out of his silo by hand. Charles and Byron Ferguson, dairymen near Woodland (also in Cowlitz County), have their plant fixed up so even that's not necessary. They have a silo unloader which digs it out mechanically.

The Ferguson brothers have used a silo unloader for a year.



Above: Here's what a self feeder looks like. There are two parallel endless chains with feed-moving flights between them at regular intervals. They push the feed along through a wooden channel. **Left:** The business end of the conveyor. The 1½ hp motor drives a gear that in turn drives the conveyor shaft at a ratio of 15 to 1.

They are now installing a feeder chain, like Antilla's, for a 180 to 200 cow herd. It will run the full length between two 33 x 200 foot loafing sheds. There will be a feed bunk, four foot wide, running along beneath the chain. On either side of the bunk there will be a concrete slab, 10 foot wide, for the cows to stand on. A shed roof will cover bunk and slabs. The silo unloader, which the brothers move from one to the other of their silos as they're emptied, will dig out the silage and pile it on the chain for quick transfer to the feed bunk.

Ture Oman, dairyman on Wahkiakum County's Puget Island, down in the Columbia, is another dairyman, who, along with Antilla, can already verify the labor-saving features of a self-feeder. With his set-up, about 25 minutes a day are spent in feeding out the silage for a 50 cow herd. His silo is close against the end of the loafing shed and the self-feeder carries silage the 120 foot length of the building in a matter of minutes. Oman feeds his cows all the silage they'll eat, filling the manger each morning in winter. He also feeds baled hay, thrown from the hay storage space into the manger below the automatic feeder. The mechanical equipment, without the 1 hp motor used, cost him $540.

"The chain feeder amounts to a cheap 'hired man' for us," Oman says.

Here is the housed mechanical feeding system on Richard Woods farm at Brownsville, Oregon. It is a single conveyor running out from the silo into the loafing sheds. Feeding is from both sides. He uses a silo unloader too.

Wired Warmth

The Simplest Way of Providing a Basic Need of All New Life

Food and shelter for animals are two of the biggest problems in any livestock enterprise. The quality of each is usually reflected in the finished product. With some classes of livestock, the shelter need be of little concern, as long as it's weather-tight. However, with others, such as chicks, we must provide heat, or there will be no product.

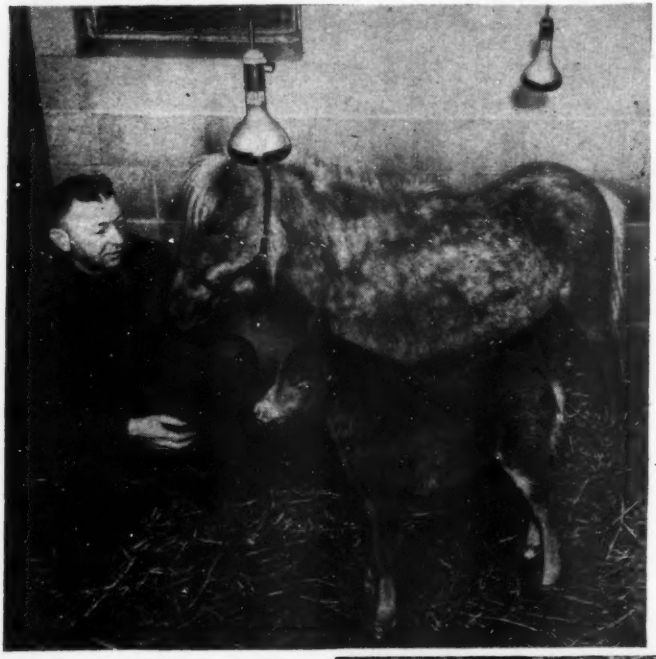
Strangely enough, this need for heat which is so apparent in the chick, is present in most animals in varying degrees. The lambs shown on our cover stay right within the rays of the 500 watt infra-red heater suspended over their pen. They don't have to be told about it either! If it's provided, they'll make use of it.

Unfortunately, the hazards connected with the maintenance of fuel burning heaters have kept many farmers from providing added warmth when it's most needed. When the weather is cold and blustery and the winds howling, the tending of a stove and the worry over its safety make one wonder if the cure isn't worse than the disease. However, with the ever increasing use of infra-red lamps, and the simplicity and carefree manner in which they may be operated, there is no shelter, about the farmstead, that can't be made into a warm shelter.

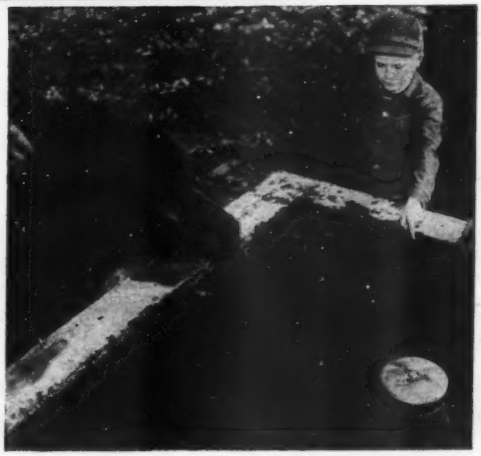
Chicks, lambs, pigs, and calves are more and more commonly getting their start in life in their warmth. Now we have another contender for its use.

Leon Clark of Martinsville, Indiana, has been interested in agriculture since a boy. He spent seven years in 4-H Club work in Johnson County, and is very proud of the fact that he won the County Judging Contest three years in a row—and placed ninth in the State the third year.

After leaving high school, Mr. Clark tried his luck at raising hogs. Those were the days before electricity on the Clark farm, and the job of saving new born pigs was often a disappointing one. Many a night he spent with a lantern in the farrowing house drying off new born pigs and warming them with a jug of hot water in a tub covered with a blanket. Even with all this work, pigs were lost that might have been saved.



Above: Leon Clark shows real affection for his Shetlands. And he is justified. The mare here was reserve champion at the Indiana State Fair in 1950. Mr. Clark is Vice President of the Indiana Shetland Pony Breeders Association and also Vice President of the Central States Association. In 1952 his ponies placed second and third in a mare and foal class of 13 entries and all of his colts were raised under infrared heat lamps.



Right: The young lady in this illustration and on the cover is Miss Carol Miller, Walter H. Miller's six year old daughter. Walter's farm is near Lafayette, Indiana. These ponies were imported from the Shetland Islands and, incidentally are valued at $1500 each. The de-icer insures a ready supply of drinking water for these valuable animals at all times.

When the Clarks finally had their farm wired, the job of saving new born pigs was eased. Mr. Clark used an inverted pan with a bulb through a hole in the center of it to furnish heat for the baby pigs. This first electric pig brooder was a great improvement. However, it wasn't until the development of the heat lamp that pig losses due to chilling were practically eliminated.

On the Cover

This is little Miss Carol Miller, age six, admiring her father's lambs who are quite content under the 500 watt infrared heater. She "farms" with her father Walter H. Miller near Lafayette, Ind.

In 1938, Mr. Clark went into the pure-bred Shetland pony business. He now maintains a herd of approximately 45 ponies. He raises 16 to 20 colts a year, and tries to hit the high market for them, which is in September.

In order to have colts ready for the National Breeders Promotion Sales at Janesville, Wisconsin, in September of each year, Mr. Clark has to have his mares foal in March. March can be a pretty cold month, so Mr. Clark, looking back to his hog raising experiences, decided to use infra-red heat lamps. One lamp is used in each pen, except in extremely cold weather, when two lamps are used. The lamps are hung from the center of the pen, just high enough to clear the mare's back. They are left on for about ten days, being turned off only when the weather warms up to the point that no heat is needed. It takes just two or three hours for the new born colt to find the heat. After that it's difficult to get him to move. This system has saved several colts in the last few years.

Walter Miller, Manager of "The Farmers Feed Store" at Lafayette, Indiana also raises Shetlands at his farm. These animals are very rugged, rough and tough, and from a land of cold and snow. However, that's no reason that the little colts don't love the infra-red heat in the early days of their life. An imported Shetland is worth $1500. Mr. Miller says "I could not afford to risk the small cost of a lamp and electricity against the loss of valuable animals. That would be penny wise and pound foolish."

Mr. Miller also has a flock of aged ewes that he purchased at a very low figure. He has been able to get some nice lambs plus a wool crop from the ewes. The old ewes and buck lambs will be sold. The ewe lambs will be a new flock foundation. Some of them can be seen on our cover as Miss Carrol Miller, age six, keeps her watchful eye over them. According to Mr. Miller, "Infra-red lamps bring summer warmth to the lamb pens, help to dry the new-born, and stimulate both mother and lambs."

Making Grass Silage

Today's trend in silage making and feeding poses many new problems. A good understanding of those problems is of vital importance to both the farmer and the manufacturer of farm machinery. Available from the USDA Bureau of Dairy Industry, Agricultural Research Center, Beltsville, Maryland, free of charge is a very comprehensive report covering the developments and problems in making grass silage.

Simply drop a card to the above address and ask for report #BDI-Inf-149.

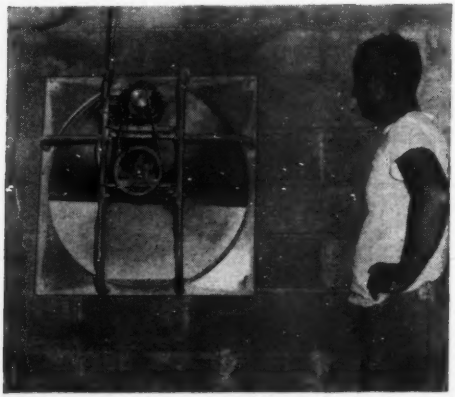
WIRED WONDERLAND
INTERESTING FACTS ABOUT THE INDUSTRY THAT SERVES YOU.
PUMPERATOR
-THAT'S WHAT THEY'VE TAGGED THIS HYBRID!
IT'S A CROSS BETWEEN A MOTOR-DRIVEN PUMP AND A WATER-DRIVEN GENERATOR -ALL IN ONE UNIT.
IN EVERY 24 HR. PERIOD, THERE ARE TIMES WHEN WE USE A LOT OF ELECTRICITY. THERE ARE ALSO TIMES WHEN WE USE JUST A LITTLE..THIS UNIT'S OPERATION IS BASED ON THESE PERIODS OF HIGH AND LOW USE.
DURING LOW USE PERIODS, EXCESS CURRENT FEEDS INTO THE MOTOR WHICH TURNS THE WHEEL. THIS, ACTING AS A PUMP, FORCES WATER, FROM THE RIVER ; UP THE HILL INTO A RESERVOIR.
WHEN EXTRA ELECTRICITY IS NEEDED, WATER RUNS BACK THRU WHEEL, SPINS GENERATOR WHICH FEEDS ELECTRICITY INTO POWER LINES.

Fattening Broilers With Air

More Rapid Gains Produced by Better Ventilation

By WALTER L. BAKER, JR.

E. P. Terrell, Etowah County, Alabama farmer, is sold on the value of ventilation in raising broilers. And he has every right to be. By nature a truck farmer near Gadsden, Mr. Terrell built a 50′ x 90′ plain two-story concrete block building some three years ago to be used principally as a tomato grading and storage shed. Shortly after its completion, however, the broiler business began to boom in Etowah and the surrounding counties, and he decided to try using it as a broiler house.



Paschal Terrell admiring one of the 36 inch window type exhaust fans in his poultry house.

Mr. Terrell, with the help of his power supplier's Rural Service Engineer, worked out a wiring plan for both floors of the building. It was designed to serve twenty-four 1000 watt thermostatically controlled infrared brooders to handle 12,000 chicks during the colder months, and 10,000 during the warmer months. Both floors were equipped with automatic waterers. Provisions were also made for the installation of two 36″ regular window fans and one 2-hp centrifugal type fan to supplement natural ventilation on the second floor. Mr. Terrell was of the opinion at the time that natural ventilation on the first floor was sufficient.

The first batch of 12,000 chicks was put in the house during the first part of January, 1952. He grew out five batches during the year, totalling 56,000. Losses averaged approximately 2 percent above extras.

Detailed records of feed consumption and selling weights were kept and it was determined that for every 100 pounds of feed given the birds, Mr. Terrell sold 34 pounds of meat. Chicks were sold at an average age of nine weeks.

Detailed records were also kept on the cost of brooding. Throughout the year the average electrical consumption per chick was less than ½ kwhr. Ten tons of coal at a price of $8 or .14¢ per chick were used in supplemental space heaters, two of which were installed on each floor.

The total brooding cost per chick was .91¢. Electrical consumption not only included brooding, but also current consumed by the two 36″ fans (½ hp motor each), the centrifugal fan, a ¾ hp water pump, a ½ hp elevator, a ½ hp feed conveyor, and 1440 watts of miscellaneous lighting.

A portable elevator that Mr. Terrell made to save him heavy lifting.

This was pretty good, but Mr. Terrell had noticed an accumulation of ammonia from the droppings during the summer months and he was of the opinion that a better ventilation system was needed. He thought he could even better the record, of 34 pounds of meat for each 100 pounds of feed given the birds, with better living conditions.

In March of last year, Mr. Terrell purchased two 42″ exhaust type attic fans, installing them in the top of the building to ventilate the upper story. The two 36″ window fans that had formerly been installed in the upper story were placed on the lower floor. This system was planned to provide a complete change of air every 1.8 minutes on the upper story and every 3 minutes on the lower floor. The lower floor is better suited for natural ventilation, so its air requirements were set lower.

In April, a batch of 10,000 chicks were started and, upon their sale nine weeks later, it was found that 38 pounds of meat were sold for each 100 pounds of feed, compared to a 34 pound average for 1952. Again a careful check was kept as to losses and the figure did not even approach the extras given by the hatchery when the chicks were bought. Further, Mr. Terrell noticed no ammonia odor in the building under the new system.

Mr. Terrell received a premium of slightly over $700 for the broilers sold because of the additional 4 pounds of meat per 100 pounds of feed. He estimated that the cost of electricity for added ventilation only amounted to about $8 for the period. Mr. Terrell attributes a large part of his increase in weight per bird and his decrease in mortality to his now adequate ventilation system.

It's Clog-Proof

Bridging Problem Licked in This Once-a-Week Feeding System

By WILLIAM GILMAN

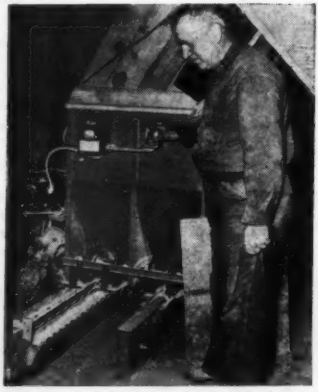
Although hatching-egg producer Howard A. Moxley, Andover, New Hampshire, has a flock of 2,000 layers, his operation is so well mechanized that he has to supply them with feed only once a week. And that takes him only 20 minutes, with electrical horsepower doing all the work!

He simply flicks a switch and 3,500 lbs. of mash, from his bulk-delivery bin, is elevated to the top of his three-story hen house. A ¾ h.p. motor does the lifting.

There, the mash drops into a home-built chute-hopper which keeps an automatic feeder on the second floor filled. This feeder, run at half-hour intervals throughout the day by time clock, has three self-loading troughs. Each of them carries mash to one of the floors.

Moxley has made his system fool-proof. There is no clogging or bridging of mash in his chute-hopper system. His bulk-storage bin is filled from outdoors. The delivery truck backs up, and its 25′ augur does the rest. Moxley receives eight tons at a time—about one month's supply. This assures a fresh supply of mash at all times.

Although the hens receive their mash automatically at half-hour intervals throughout the day, the actual feeding chore takes place once a week—and then by push-button. Here's beginning of the line—the 8-ton bulk storage bin. It's filled by the delivery truck's augur. Once weekly, in 20 minutes, this 20 foot conveyor fills the chute-hopper which supplies the automatic feeder. The feeder is run by time clock and Moxley figures it saves him a bag of mash weekly because hens waste less.



Howard Moxley's hen house has three floors, but is handled by only one automatic feeder—on the second floor. Here he has removed side panel to show how building's 2,000 producers of hatching eggs get their mash. Each of the three sprocket wheels runs a chain-feed circuit to one floor. There's also room on the shaft for a fourth sprocket wheel to handle a fourth floor. Left circuit feeds this floor; center one runs to floor above; right one feeds floor below. There's 84 feet of feeding circuit per floor.

Here is an effective home-made answer to mash bridging over in the hopper. From the shaft of the agitator (at bottom of hopper which keeps mash flowing into conveyor chain) Moxley ran a pitman to a second agitator he installed at chute spout. Shaft is ⅝-inch rod extending through hopper. On it are mounted three pairs of ⅜-inch rods, 10 inches long, which keep the mash stirred and flowing. Here is another example of how farmers, users of existing equipment, are constantly improving it for their particular needs.

This simple remedy was borrowed from an old-fashioned chimney-cleaning idea by Howard Moxley. Behind him is the chute from the bulk-feed mash bin to the automatic feeder. That large chain link is a handle to be yanked if mash bridges in the chute. Rope goes over pulley and is tied to bottom end of a 16-foot chain hanging in the chute. When pulled, chain doubles up in the chute and when released it wriggles down under its own weight, breaking jams in the mash all along inside and near the spout or exit gate.

Pump Portability—A Plus Value

Irrigation Power Requirements Reduced as Pump's Coverage Capacity is Multiplied

By Herbert Jonas

Have you another piece of ground somewhere on your farm that you'd like to irrigate—but figure it isn't worth the price of either a long pipe line or a second pump? Maybe it will pay you to make your electric pumping outfit portable.

Because it was cheaper and easier to build an electric line than it was to either lay a long pipe line or buy another pumping outfit, Paul Schreiber made a portable unit of his 3-hp electric motor and pump. Now he uses this portable arrangement to irrigate two separate pieces of pasture at his farm near Naches, Washington.

Schreiber mounted the electric motor and pump on a wood platform. He uses the hydraulic lift arms on his tractor to lift and move this platform pumping outfit between pastures. A heavy duty cable from the motor is plugged into an outdoor-type convenience outlet at each pumping installation.

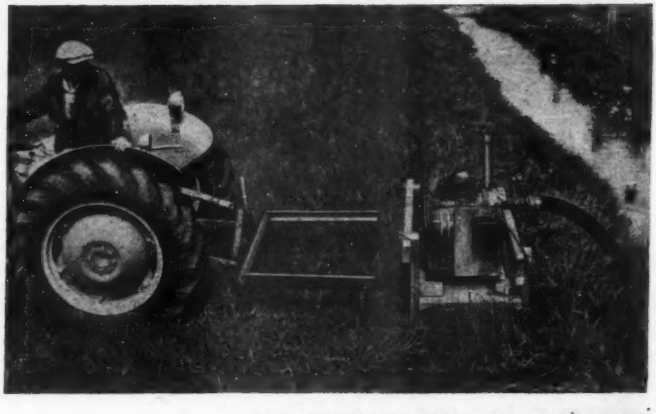
Art and Bob Hanses, Route 5, Yakima, Washington, saved the cost of a second motor and pump by mounting a 5-hp unit on a homemade trailer. The trailer is moved up and down the highway to irrigate a 16-acre pasture block and a 7-acre alfalfa field located more than a mile apart. The irrigation source is a small creek.

"We've used sprinkler irrigation for three years, and it has both increased pasture carrying capacity and boosted our hay crops. And, it has saved on seed, too. Because the sprinklers spread water evenly, we get better germination," says Hanses.

To build his trailer pumping outfit, Hanses welded a length of 4-inch pipe forward from the axle taken from an old car. He then welded cross-braces between the pipe and axle. A 12-inch-wide section of channel iron, welded in position, serves as mounting support for the motor and pump.

Hanses' irrigation trailer is equipped with a pressure switch which will automatically disconnect the motor, should anything happen to the water supply entering the pump. A pressure gauge, carried on the trailer and connected to the water supply line, makes it easy to maintain recommended pressure to the sprinkler system.

Left: Designed for travel across fields or along the highway, Art and Bob Hanses mounted 5 hp electric motor and centrifugal pump on a home-made trailer. Intake for pump is flexible hose.



Below: Paul Schreiber built a portable irrigation unit. He mounted electric motor and pump on a wood platform that is moved by tractor hydraulic lift arms.

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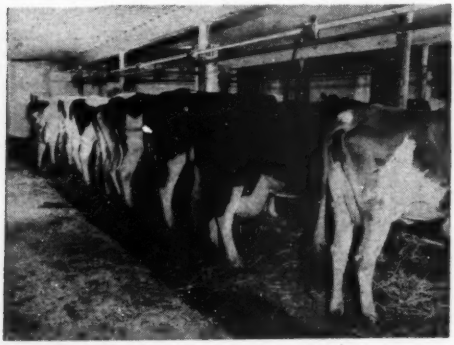
Bulk Cooling's Coming Fast

Cold Wall Tanks and Combine Milkers are Changing Dairy Methods

By BRUCE FEARN

Greenwood Dairies changed to 100% bulk milk handling. Soon after, Frankford Dairies put on a tank truck. Then Abbotts Dairies put on a tanker.



The milker hose is connected directly from the milker to the glass pipe line.

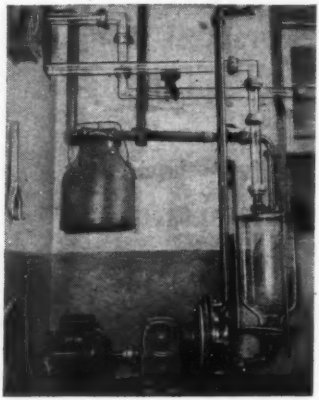
This is the Philadelphia story—a story that is being duplicated all over the country. Ten years ago if anyone had predicted that milk handling would undergo such a basic revolution, folks would have recommended a padded van. But here it is—not only a part of tomorrow—but part of today.

How does the system work? Where the farmer has the pipeline and bulk tank combination, the milk goes directly from the cow through the pipeline, the strainer, and into the bulk tank, where it is immediately cooled. There are no buckets, no trips back and forth to the milkhouse, no swinging doors and no 40 quart cans. Down the line he goes with the milking machines—quick!

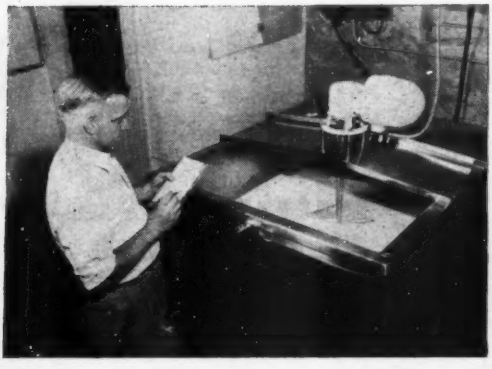
Now the milkhouse is spic and span and the bulk tank is filled with sweet milk, cold and pure. Everything is ready for the tank truck to appear. The tanker has a regular schedule and the farmer will know, to within a half hour, when the truck will arrive. However, the farmer does not have to be on hand. If he is plowing or making hay he need not be interrupted, for the milk pickup goes according to rigid procedure.

The tanker swings up to the milkhouse and into a convenient working position. The driver goes into the milkhouse and measures the milk in the tank by means of an accurately calibrated measuring rod. The amount of milk is recorded in duplicate on a receiving slip, one of which is left in the milkhouse for the farmers record.

After turning on the agitator in the tank, the driver goes to to the truck and brings the flexible milk line and the electric cord, for milk pump power, into



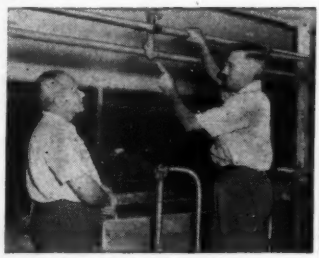
The glass dome at the right is the vacuum release. Next to it is the sanitary milking pump.



Left: As the driver makes his receipt slips in duplicate the agitator in the tank makes a complete milk blend. **Right:** A sealed cabinet on the side of the tanker holds the milk pump and provides storage for the plastic milk line and electric extension cord. Incidentally, one of these large tankers represents an investment of about $22,000.

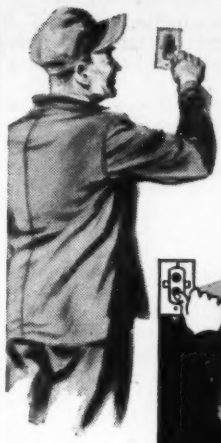
the milkhouse. When the sanitary connections of the milk line have been fastened to the tank, a composite milk sample is taken. The agitator which has run about 4 minutes assures a well blended sample. Next the tanker's milk pump is started and in a few minutes the farmer's tank is empty. The driver stows the milk line and the electric cord, and, before leaving, thoroughly hoses down the farmer's tank.

The milk has been received at 36° to 38° by the tanker. It will be delivered at the dairy at 40° or less. It will have been unexposed to air or other contamination until the consumer raises the glass, brimming with health. It costs money—sure—but it saves money, too, and makes money. And best of all, it delivers a better product to the consumer.



J. Merton Van Zant, owner of Lonoak Farm, Doylestown, Pa., points out the lightning fast jet flush action of his cleaning procedure. Mr. Van Zant has had bacteria counts as low as 2,000.

As with most progress, the change to bulk handling entails some problems. The farmer's major problem—mostly financial—is the purchase and installation of the bulk tank. There may also be the need for increasing wiring capacity to provide for the operation of the heavier refrigeration equipment required. Electric motors on the cooling units range from 1 to 5 hp, with the average 30 milker farm using about 2 hp. That means 115-230 volt service for the milkhouse. The tank will cost the average 30 milker farmer about $2,500. That is a lot of money, particularly if the milkhouse is equipped with a good can cooler, the disposal of which will entail money loss. Add to



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Works in perfect combination with silo unloader. Makes entire operation a push-button job. Write for details.

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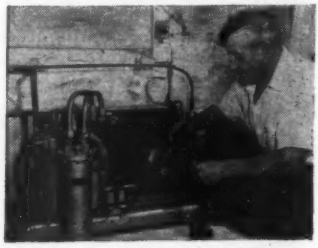
this a glass pipeline milker, and the average 30 milker farmer faces a financial outlay running up to $5,000.

In spite of this, a survey of Greenwood Dairies' farmers failed to reveal any reservations about their bulk handling. The universal response was, "This is the way to do it. I don't ever want to see a 40 quart can again."

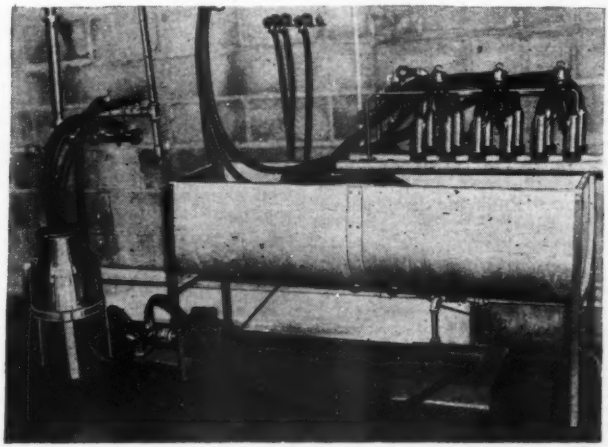
The financing of bulk tanks on the Greenwood Dairies supply farms was handled cooperatively. Greenwood Dairies rented or sold the tank, made the complete installation, including any additional wiring, and arranged financing where necessary. Paul Sauerbry, owner of Greenwood Dairies, said, "I offered plans with plenty of elasticity so that everyone could get a tank. I sold the tanks at cost, plus free freight, free installation and free calibration. The farmer could pay cash or time payments over a period of 1, 2, or 3 years—with or without down payment. Payments are deducted from the milk check. Or the farmer could rent a tank for $5 per month plus 15c per hundredweight of milk. In addition, I service all installations. The result is that all my suppliers went along and I don't know of any one who is unhappy."

In other cases the farmer does all these things himself. Between one extreme and the other, there is a solution for practically every situation. The big point is that the financial problems, which loom large at the beginning, can and do get handled to the satisfaction of everyone.



The fast cooling of the bulk tank requires a heavier refrigeration compressor. Good maintenance gives unlimited life always.

Now for the advantages. Topping the list is, as it should be, better quality milk. With a bulk tank, the milk is cooled to a bacteria inhibiting 36° to 38° within minutes after milking. Where premiums are paid for low bacteria counts, this alone can mean profit dollars.



Pictured here is an arrangement for cleaning a milking system. A washing circulator pump is connected to sanitary and vacuum pipelines as shown and vacuum turned on. This immediately starts the rinsing of all parts and the pipeline. Rinse water rushes through the entire system with adequate velocity. Air which mixes with it, provides violent brushing action. Immediately after rinsing, transfer tubes from the washing manifold to the second compartment of the wash vat in which a solution of water and an approved pipeline cleaner has been placed. Amount of washing solution must be sufficient so that reserve remains in vat at all times during recirculation. The vacuum is now turned on to circulate the washing solution through the system for 10-15 minutes. Then the system can be sanitized with 185° water.

Labor saving is next. Not counting the pipe line milker, the bulk tank alone, by the elimination of the 40 quart can, saves time and manpower. Add the pipe line milker and solid time saving is accomplished.

One farmer, Richard Labs of Bedminster, on being asked about his opinion of the pipeline–bulk tank combination replied, "With the old arrangement, two men would have had all they could do at milking and feeding time. This way I can do it myself. That means my helper can spend more time in the fields. During planting, haying, or harvest, that means a lot. And I always get the job done in half the time." Mr. Labs lives in Delaware Valley, where the farmer must compete with industry for labor. With him labor saving is a key issue in his farm management program.

Over and above the savings in labor, are the product savings. Every time a 40 quart can is emptied, some milk sticks to the sides of the can. That which sticks has a heavy butter fat content. Studies have revealed that milk wastage, due to this cause, can average ½ lb per can. Over a year's time that money loss can total the interest on a substantial investment. It is an amount of money the farmer would not want to knowingly throw away. The bulk tank reduces this loss substantially.

When a pipe line is not used the milk is poured from the pails through a strainer and directly into the bulk tank.

There are other advantages for the farmer, including: elimination of cans and rack, providing more space in the milkroom; frequently, hauling rates are reduced.

"On the Farm" weighing and sampling gives the farmer a regular record of his production; elimination of milk can replacement costs; butter fat sampling is more accurate; and spillage during transportation is eliminated.

When the milking is over the washup is done mostly by machines. The pipelines are usually special, heavy, hard-to-break glass. They can be broken, but not easily. These lines are not taken down, or apart, to wash and clean. They are left in place and the vacuum pump does the work of washing.

There are some variations in cleaning methods. Harry Thompson of Newton has a standard 50 gallon electric water heater, factory set at 150 degrees. He puts 15 gallons of hand tested, luke-warm water into the wash tank and flush rinses this through the pipelines by vacuum. This flushes the milk from the line—once through and to the drain. It takes a matter of minutes. Next, 15 gallons of 130° water, with

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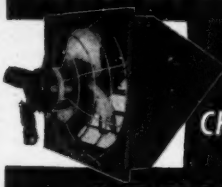

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non-foaming detergent, is circulated through the pipes for 20 minutes. (Once a week the detergent is replaced with an acid, milk stone remover. This procedure keeps the pipelines free of milk stone and water discoloration.) Then 15 gallons of hot water, as it comes from the water heater, is flushed through the pipes as a rinse. Once a week all rubber parts are hand scrubbed.

Elmer Van Zant, of Doylestown, begins with the same lukewarm rinse. However, he circulates a 170° detergent solution through the pipelines for 15 minutes, followed by a 5 minute sanitizer wash. The line is then drained and ready for the next milking.

Neither Thompson nor Van Zant have any trouble with bacteria counts. And in this business of producing low bacteria milk, success is the criterion. Both have it!

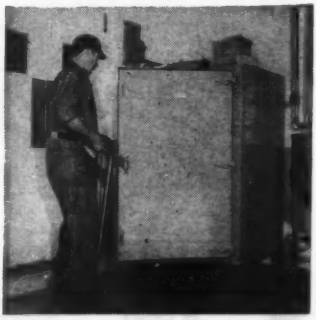
Washing the bulk tank is easy. Hose down the tank interior with hand tested, body temperature water. Let it drain away. Next scrub the interior walls with a hot 125° detergent solution. Put the detergent solution right in the tank. Careful scrubbing of every part of the interior is important. Finally, hose down with a luke-warm rinse and the job is done. It shouldn't take more than 10 minutes.

The question often asked is which detergent is best to use. The answer is the one that trial shows to work best for you. Try several until one is found that keeps the pipelines sparkling clean. Water varies in hardness from place to place and from time to time. Detergents are generally manufactured to meet what the particular maker thinks are average conditions. The farmer should use the one that meets his conditions, and the trial method is the best way of finding out.

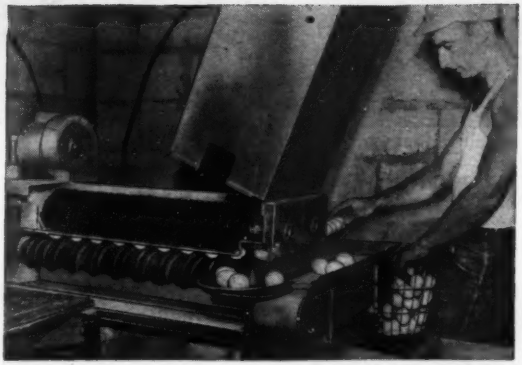
Bulk milk handling certainly has many points in its favor. There is no section of the country where it is not on the increase. The changeover may not all take place at the same time on any single farm. The first step may frequently be to combine milking. This method allows the interconnection of several cans to receive one entire milking and permits the use of existing, conventional can coolers. In other cases, the bulk cooler itself may be the first step.

Occasionally, in a test barn, a farmer wants to use a pipeline, bulk tank combination and still weigh each animal's production. To do this an accumulator is used. It can also be used to transport milk direct to the bulk tank. The accumulator is a wheeled, stainless steel covered tank. It moves along with the milking machines. After the weighing has taken place the cover is raised from the accumulator by foot pressure and the milk is poured through a strainer into the accumulator. A special valve allows the vacuum of the milker to draw the milk into the pipe line and thence into the bulk tank.

Bucks County Farmers who still use the 40 quart cans are replacing their old coolers with bulk tanks and canning off the milk for their buyers. They say, "Bulk handling is coming. We may as well be ready."



To keep utensils sterile from milking to milking, the electric sterilizer cabinet does yeoman work.



Norman Stowbridge operating eggwasher on William Blanchard's farm near Pownal, Vermont.

Clean Fresh Eggs

A good fresh egg can lose its appeal if it doesn't look fresh. There is no excuse for marketing dirty eggs. Cleaning equipment, now available, will assure the production of market eggs that have that "fresh look".

There are two basic types of cleaners on the market. One employs abrasives without wetting the egg. The other uses some form of washing process. In both types, there are different size units that will fill the needs of any size operation.

The lamp shade puts light where it's needed and keeps all rays out of the operator's eyes. Mrs. Schwabe finds this buffing setup ideal.

Pictured here are examples of a small dry-cleaner and a larger wet-cleaner.

Using a motor driven buffer to clean dirty spots off eggs is a simple task. Of course, as with any buffing operation, there is the problem of getting rid of the dust created.

Paul R. Shwabe of Healdsburg, California overcame this difficulty by mounting an enclosed kitchen ventilating fan just above the buffer. The fan sucks up the egg shell dust as it is buffed off the egg and sends it to the outside of the building through a vent in the wall. The lighting for this type of work was simply provided by a gooseneck lamp mounted on the stand with the electric motor. The neck was bent to curve over the motor with the reflector throwing the light down onto the egg and buffer.

Latest electrical equipment installed at William Blanchard's poultry farm, Pownal, Vermont, is this efficient egg washer, being operated here by the son-in-law Norman Stowbridge. Photo shows cabinet lid raised to reveal mechanism. Eggs move on rubber, worm-type conveyor. On back side, they are sprayed by 170-degree water. Foreground shows their return trip under whirling, drying brush. The machine will handle 1500 eggs per hour. The farm specializes in producing hatching eggs for Rhode Islands, Barred Rocks and their crosses.

Both of these cleaners will do an excellent job. There are many others of different capacity. Some will handle a whole basket of eggs at one time and others, not unlike the Blanchard's cleaner, pass the eggs through a series of abrasive belts.

Regardless of the size of your operation, there is a cleaner that will fill your needs.

This farmer saved 240 pump & carry hours a year with a Myers Water System

WITH OLD-FASHIONED methods you spend about 240 hours a year pumping and toting water for livestock, for poultry, for your home. With a work-free, automatic Myers water system you would have twenty extra 12-hour days.

OR FIGURE IT THIS WAY. At wages of $1 an hour it costs you $240 a year to haul water. To run a Myers pump costs less than a penny a day for 24-hour service. Your savings—upwards of $235.

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HE'LL SHOW YOU that there is a completely automatic Myers water system to provide plenty of running water at the turn of a tap, plenty of pressure day and night. When you choose Myers, you buy the finest with extra quality and years of trouble-free service built in.

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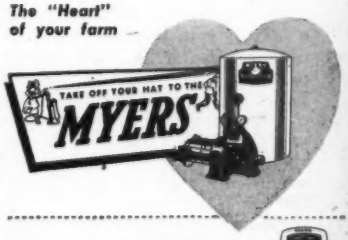

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Cut Kitchen Time in Half

That's What This Remodeling Job Accomplished

My new kitchen is so easy to keep clean", says Mrs. Louis Schantz of Orefield, Pennsylvania. She adds that "It takes little more than half the time to take care of this kitchen than was required with the old one." Mrs. Schantz attributes this to the arrangement of equipment, plenty of storage space, and the hard surfaced counter and wall coverings.

The saving of time is especially important to Mrs. Schantz, as she does all the bookkeeping for their specialized 300 acre fruit farm. This has developed with the growth of their business into almost a full time job.

As she comes in from the office to prepare lunch for her husband and son, she finds pleasure in walking into this bright cheerful kitchen. It is equipped with an electric range, refrigerator, and dishwasher. In addition, there are ample outlets for small electrical appliances.

When a new range took its place in the remodeled kitchen, the old electric one was moved to the basement. Mrs. Schantz says, "When you have used it for a long time, a range becomes a part of you. It gives us added cooking capacity for large parties, such as our family gathering on July 4th. It doesn't owe us anything, so we thought we might as well keep it for such use." An electric roaster rounds out Mrs. Schantz's cooking facilities.

Since saving time was so important to Mrs. Schantz, washing dishes by hand was out of the question. And who doesn't need all the spare time they can get these days! When the automatic dishwasher was purchased, she picked a front opening model so she would have more counter space.

Mrs. Schantz particularly appreciates her automatic electric water heater, because she had her troubles before installing it. Everything was fine when the furnace was going in winter. But during the summer it was a mean job to keep a fire in the supplemental heater. Now for year-round constant temperature water, she thinks there is no substitute for her 88 gallon automatic heater. Incidentally, for automatic dish or clothes washers constant temperature hot water is essential for maximum operating efficiency. And remember, too, that the size of tank is important. The larger tanks like Mrs. Schantz's give ample storage for heavy demands.

Pouring a cup of coffee is a pleasure for Mrs. Louis Schantz in her time saving kitchen. Well arranged electrical appliances, smooth surface coverings and plenty of storage space make this kitchen efficient and a joy to work in.

Future plans include a new refrigerator with a freezing compartment. This will be convenient for storage and will save frequent trips to her large freezer in the basement. Her present freezer has made food preservation an easy task. It beats canning because the processes are much simpler and save time.

Originally, the Schantzs wanted to build a new home, but changed their plans. They decided to remodel the old place. Mrs. Schantz had the same feeling for her "lived in" home as she did for her old electric range.

Besides remodeling the kitchen, they added a new living room. The walls of picture windows look out across the beautiful hills and surrounding territory. In the summer these windows open to make the room an outdoor porch. For evening the traverse draperies can be drawn to provide a cozy atmosphere. Valance lighting supplies soft light over the room as a stimulant to relaxation and friendliness.

In keeping with their belief that electrical conveniences save time and make life more pleasant, they have remodeled their tenant homes and provided them with electrical equipment.

New Trends in Laundering

Findings of the Specialists at the Home Laundry Conference

The American Home Laundry Manufacturers Association recently held their seventh national conferenee in New York. It was attended by manufacturers, educators, home service representatives, extension personnel, newspaper and magazine writers and home economists in related fields. All phases of laundering were discussed. Here are some of the outstanding facts that were given to us.

A. Stanley Kramer of Burlington Mills told us that originally the fiber determined the type and treatment of the fabric. This has been changed with the increase of new fibers, new finishes, new weaves and the use of combinations of fibers. He predicted that fibers will cease to have a meaning. Then the fabric will be judged by its virtues rather than the fiber of which it is made; just as the radio is no longer associated with the number of tubes or the car with the number of cylinders.

He also said that complete machine washability of fabrics was a possibility. The price controls the washability. Fabrics with dyes and finishes that will stand machine washing cost more to produce. Often the garment manufacturer demands a cheaper finish and dye, so he can produce a cheaper garment.

Some of the new finishes that make fibers launderable are *avcoset-shrinkproof* and *cellperm* and *chromspun-colorfastness*. Many fabrics being produced now carry tags denoting their washability.

Water creates one of the biggest problems in the home. The single most important item is hardness. According to maps shown by George Klumb of Culligan Inc., there are few areas in our country that are not confronted with it. Corrosion, iron, tastes and odors, and water discoloration are other factors. Each of these can easily be eliminated by water conditioning.

Powdered bleaches are much easier to handle than bleach in its liquid form. Some new types will soon be on the market. In the future we can look for light and heavy duty bleaches said Carl Pacifico of Wyandotte Chemicals Corporation.

In the field of soaps and synthetic detergents we will be seeing more bars based on synthetic detergents. There will also be improved packaging of granules, powders and liquid detergents. Because of the perfections in this field, Allen Smith of Dow Chemical Co. said that the next ten years will see the disappearance of the ring around the bath tub. He even went so far as to predict that the homes of the future would have detergents piped like water through the house.

Conventional washers still have popular usage. By applying the techniques used by the automatic, the results of laundering with the conventional washer would be much improved. We were told that no more than two loads should be washed in one water. We must get away from washing in lukewarm mud. Another common fault is the long washing period of the conventional machine. Cleaner clothes will be the result of shorter washing periods. To help in acquiring the habit, it was suggested a simple timer be used.

E. O. Morton holds the German Bosch Sound Washer during a demonstration of Sonic Washers at the conference. On the left is an Australian Electrosonic Washer and at the right a German Pulsette. At present, sonic washers such as these are not comparable to the effectiveness of our standard units.

Of all the washers, either automatic or conventional, there is none made that will not do what you want, if you know how to do it. This comes right back to the responsibility of understanding the machine and following the manufacturer's instructions.

Fabrics that carry this wash basket tag are guaranteed washable by their manufacturer. The fabrics have been submitted to all laundry methods. These tags guarantee a consumer that the material will be as good as new when washed in the machine.

It was pointed out that for top efficiency the laundry equipment should be used together. A dryer will be as useful combined with a conventional washer as with the automatic. Then to complete the unit for greater efficiency, use an ironer with the other pieces of equipment and iron directly out of the dryer.

A report on the Sonic Washer was given by E. O. Morton, an engineer with Westinghouse. This is a vibration type washer now manufactured in Australia and Europe with the right to produce here held by a company in Chicago. The only ones made are of the sonic type, where the vibration can be heard. Their frequency is up to 20,000 cycles per second. The ultrasonic or high frequency type is not produced because of high cost, need of an electrical technician to operate it, and its unknown effect on fabrics.

We were shown models of the type now made. They are

small pulsator units that are placed into a laundry tub of clothes. There is no arrangement for extraction of water from the clothes. The use of this type of washer reverts back to the old way of hand wringing or the use of the hand wringer. The machines operate on 24 to 40 volts from a step down transformer. This is necessary because of the danger of the combination of water and electricity.

The results of tests by many of the laundry equipment manufacturers show that the washing performance of the sonic washer is little, if any, better than soaking clothes in the same temperature of water with the same detergent and the same type of clothes.

Modern starch is a great departure from the old types according to a report from Helen Hamilton of Corn Products Refining Company. The new starch goes into the fabrics not on them, the colors of the garments are brighter with it, and the starch doesn't stick to the iron. She emphasized the three steps necessary for good starching—1) Have enough solution to cover the articles, 2) Use a recipe to make the starch, and 3) Agitate for even starching. She definitely recommended starching in the washer and drying in the dryer for a saving of time and effort. In using the dryer, dry the clothes to iron dryness, place them in a plastic bag, and iron when convenient. They found from tests that the dryer-dried starch clothes had a smooth finish. There was no loss of starch except in the high spin or unless the clothes were bone dried and allowed to tumble after.

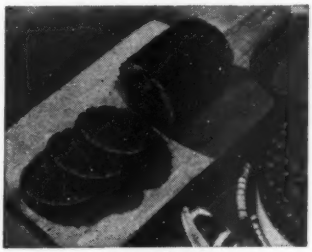
The best place to thaw frozen meats is in the food storage cabinet of the refrigerator. There is less loss of juice than with more rapid defrosting at room temperature. It takes 5 to 12 hours to thaw 1- or 2-pound steaks completely in the refrigerator, and 8 to 12 hours for a 4-pound roast. Defrosting at room temperature is satisfactory, but meat should not be kept at room temperature after thawing. All meat should be cooked as soon as it is thawed.

Quicken the Appetite

Hot Breads Will Do It

Nothing quickens the appetite more than the smell of hot breads baking. Nothing tastes better on a cold day than hot breads fresh from the oven. Hearty, nourishing and tasty hot breads are these made from whole wheat cereals. The cereal gives the bread a nut-like flavor and makes it economical.

The Brown Bread may be made ahead of time and steamed



Brown Bread

while you do other work. It will also keep moist and may be reheated in the top of a double boiler for the next meal.

Tommy Tucker Bread may be cut into squares in the pan and served right from the pan, thus saving a serving dish and the muss of a warming napkin.

Brown Bread

½ cup sifted flour
1 teaspoon baking soda
¾ teaspoon salt
1¾ cups uncooked instant whole wheat cereal or 1⅔ cups uncooked regular whole wheat cereal
⅔ cup seedless raisins
⅓ cup dark molasses
1 cup sour milk or buttermilk

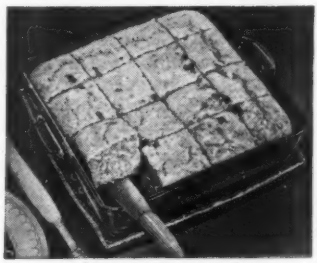
Grease two tin cans, the size that holds 2 cups. Sift flour, baking powder and salt. Add cereal and raisins. Stir until mixed. Add molasses and milk and mix well. Allow to stand about a minute. Then stir to mix raisins throughout the mixture. Pour half into each can. Tie wax paper over the top with a string. Place cans on a rack in a deep kettle with a tight cover. Add boiling water to come ½ up on the cans. Cover kettle tightly. Allow the water to boil slowly for three hours. As water evaporates, replace with boiling water. About 15 minutes before the time is up, heat the oven to 250°F. At the end of the three hours lift the cans from the water and remove the wax paper. Place on the oven rack for 10 minutes to dry off. Take from the oven. Loosen the bread from the sides of the can and remove at once. Allow the bread to stand a few minutes before slicing. Serve hot with butter.

If you do not have sour milk or buttermilk, stir 1 tablespoon lemon juice or vinegar into 1 cup sweet milk. Let stand 5 minutes before using.

Tommy Tucker Bread

2 tablespoons shortening
1 cup sifted flour
2 teaspoons baking powder
1 teaspoon salt
3 tablespoons sugar
1 cup uncooked instant or regular whole wheat cereal
1 egg
1½ cups milk

Heat oven to 450°F. Grease 8 or 9-inch square pan. Melt shortening and set aside to cool



Tommy Tucker Bread

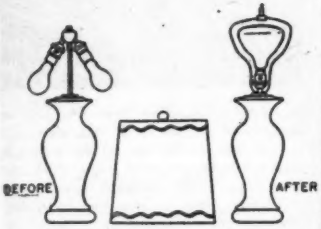
slightly. Sift together the flour, baking powder, salt and sugar. Add the whole wheat cereal and mix well. Make a hole in the center of the dry ingredients. Add egg, milk and cooled melted shortening. Break up the egg yolk and stir the mixture only until the dry ingredients are wet. Do not beat or overmix. Pour into a greased pan. Bake 30 to 35 minutes or until brown on top. Cut into 2-inch squares and serve hot. Makes 16 2-inch squares.

Fix That Old Lamp

A few improvements will make old lamps useful as well as decorative. These changes are so simple and easy that anyone can make them.

A lamp too low to provide enough light for reading or sewing, can be made useful by attaching a wooden block to the bottom of the lamp base and by adding a wider shade.

Inverting the socket of a turned-down bridge lamp, adding a diffusing bowl, and covering with a wider shade, converts it into a modernized lamp, giving a soft light. The sockets of some of this type of bridge lamp cannot be inverted. For them use a silver bowl bulb and a light reflector disc. These are fastened to the socket. The silver bowl eliminates the glare from the unshielded portion of the bulb.



Old table lamps are usually found with a double socket that, due to their design, hold only small wattage bulbs. To improve this type of lamp replace the double socket with a single socket. Place a wide harp around this socket to hold the shade. Use a large white indirect bulb (never less than 100 watt) for diffused light.

Book Review

• INTO THE FREEZER AND OUT by Donald K. Tressler, Clifford F. Evers and Barbara Hutchings Evers. The Avi Publishing Company, $3.75.

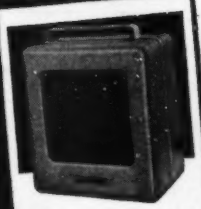
A new edition of a popular freezer book is now available. It is complete with answers to most questions on freezing. The freezing qualities of all the new fruits and vegetables developed in the last seven years are included with the familiar varieties. Directions for freezing vegetables, fruits, meats, poultry, fish, and dairy products are given. The selection, quantity received from a given amount, ways of preparation, and out of the freezer cooking are also discussed. "Show off" foods for that special occasion or party, school lunch suggestions, care of the sportsman's catch plus recipes for its preparation, are just a few of the many items. The recipes such as ice cream, and brown-and-serve rolls will be of interest to the homemaker.

Chapters deal with the types of freezers, their use and care, and the services of locker plants. The five-point management program for freezer space should be a help to any freezer owner.

SAFE HEAT ON YOUR FARM

ELECTROMODE
All-Electric HEATERS

FOR YOUR MILK HOUSE



This Electromode Milk House Heater with built-in thermostat provides comfort for milk house chores and prevents water pipes freezing. Fan-circulated heat keeps area dry, preserving milk house structure and aiding ventilation. Makes ideal sanitation possible. Economical to operate. *Many Uses:* Brooder pens, fruit and vegetable bins, and buildings all around the farm.

SAFETY FACTOR 100%

All Electromode's have patented, cast-aluminum heating element. No danger of fire, shock or burn. Guaranteed for 5 years. Approved by Underwriters' Laboratories. Safety switch prevents overheating.

FOR YOUR HOME

There's an Electromode for heating any room in your home, in wall and portable models. Illustrated above is the automatic wall type heater for big rooms.

FOR YOUR PUMP HOUSE

For economy and safety use the Electromode automatic heater, ruggedly designed especially for the pump house. No frozen pipes; no danger of fire. Thermostatically controlled.

SIMPLE TO INSTALL

Wall brackets are provided to mount heater on wall. Only necessary to run two wires (120 or 240 volt as required) to heater connection box.

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DEPT. EF-14, 45 CROUCH ST., ROCHESTER 3, N. Y.
Please send complete information on Electromode Heaters:
☐ For Milk House. ☐ For Pump House. ☐ For Home.
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Now you can stop worrying about
RAW MILK DISEASES
Have SAFE Pasteurized Milk with
HOME HEALTH PASTEURIZERS

Milk from tested cows, handled with the best of care, may still contain germs causing undulant fever, typhoid fever, polio and other diseases. Home-Health Pasteurization destroys these harmful bacteria but doesn't destroy nutrition of milk or spoil its flavor. You can pasteurize milk in your own kitchen.

ONLY HOME-HEALTH OFFERS TWO, EASY TO USE, SIZES

FOR LARGER FAMILIES. A two gallon pasteurizer that's compact and light-weight. Positive bacteria kill without loss of flavor. Dual heat principle. Just turn it on . . . it's automatic. Laboratory tested.

FOR SMALLER FAMILIES. Popular one gallon size gives same positive pasteurization. Accurate timer-thermostat. No watching or stirring. Convection Heat Principle. Both models guaranteed for one year . . . Underwriters approved . . . Accepted for advertising by Am. Medical Assn.

FREE FOLDER
Get the facts on milk-borne diseases and their prevention through pasteurization. Write

WATERS CONLEY COMPANY
Dept. E Rochester, Minnesota

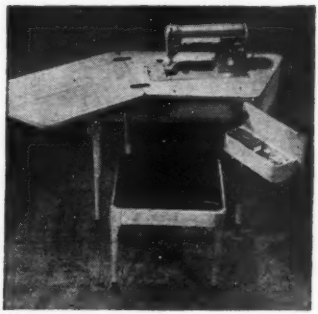
Tell your dealer you saw it in
ELECTRICITY ON THE FARM
Magazine

Let's Shop for a Sewing Machine

A Look at Features of the Latest Models

Are you planning on buying a sewing machine for use in your home? From the large selection in a wide range of prices and types on the market you will be sure to find one that will fit your needs.

The purchase of a sewing machine is a lifetime investment and as such requires careful consideration. Here are several points that will help you make the right selection.



A new console type machine has been designed to improve sewing posture and top quality sewing. The angled table top provides arm rest space without leaning forward and the angled machine sets the needle directly in front of the sewer. The cabinet type has ample work space, is a sturdy base for the machine, and will handle any type of sewing.

First, consider the type of sewing for which you will use the machine. Perhaps it will be used only for occasional plain sewing, for mending and patching, or for making simple garments. For this type of sewing a simple plain sewing machine is best. This kind of machine fits the needs of the woman who is doing dressmaking and tailoring, but would have little use for decorative effects.

For the person who likes specialty sewing, such as decorative stitching, embroidery, or fancy edges, there are newer types of machines to meet her needs. These are equipped with a swing needle or zig-zag mechanism to do the fancy work without the addition of attachments as well as regular sewing. In considering this type of a machine, it must be determined whether this specialty will be used often enough to be worth the added cost and the time and patience in learning to manipulate it. The more added features there are the more detail in learning to operate it.

Another decision that will need to be made is between the cabinet and portable machine. The cabinet is ideal for housing the machine and for providing good support for sewing. It is always ready for use, without having to be moved to a spot and be set up. If the cabinet type is your decision, the cabinet should be selected to fit the style and design of the rest of your furniture.

A portable machine that fits into an easy-to-carry case. It is operated with a foot control. This model has a hinged bed extension to give more work surface area. Other portable types fit into a special table or into the open case for working surface.

The person with limited space or conditions where the machine must be moved from place to

only Monarch has this stoopless oven
(plus regular oven)

This amazing Monarch "Color-Vu" Electric Range has a patented "deep-heet" oven built into the range top. It's perfect for vegetable dinners, baked beans, sauerkraut and spare ribs, fowl, baking biscuits and cookies—and as a warming oven. No stooping. Just lift the cover and there's your food! Also full-size regular oven.

See your Monarch dealer or write
MONARCH RANGE COMPANY
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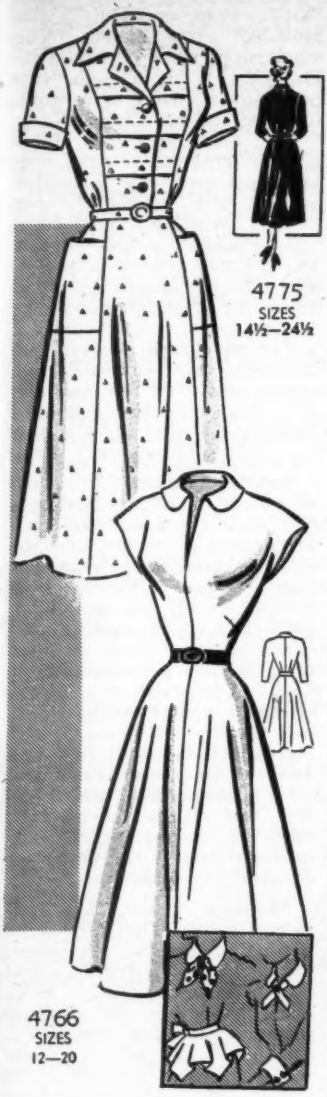


Two to Sew

4775—For the short, fuller figure—a dress that's both slimming and youthful! Tucked bodice, gracefully flared skirt, hip pockets. Half Sizes 14½—24½. Size 18½ takes 3⅞ yards 39-inch fabric.

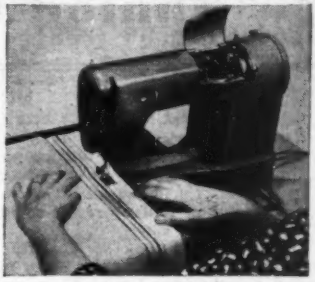
4766—Make this dress in a neutral shade, and many accessories in prints, checks or white! Clear, classic lines! Misses' Sizes 12-20. Size 18 dress takes 3¾ yards 39-inch fabric.

Send THIRTY FIVE CENTS (in coins) for EACH pattern to: ELECTRICITY ON THE FARM, 233, Pattern Department, 243 West 17th Street, New York 11, New York. Add FIVE CENTS for EACH pattern for 1st-class mailing. IN CANADA: 60 Front Street, Toronto, Ontario.

place will find the portable answers her needs. Portable sewing machines vary as to type and kind with lightweight or regular heads. The determining factor in selecting one of these is the type of sewing to be done. If it is bulky sewing—such as wool coats, draperies or slip covers, the regular head will do a satisfactory job. For sewing other types of garments and materials the lightweight head is ideal and much lighter to move around. The base and case of the portable should be sturdy, well finished, and designed to blend with the machine.

The next choice to be made is between the long shuttle and the round-bobbin type machines. The long shuttle is simple and easy to clean and oil, though it is noisier and not designed for high speed. The round-bobbin machines are either oscillating or rotary and are designed for smoother operation and greater speed.

The final step is a personal inspection of the various types of machines. This can be done by visiting your friends and neighbors and discussing their sewing machines. A visit to dealers to try out the various types will help. Remember you will want



This is one of the new type machines that by changing a disc will perform different kinds of sewing. These discs have replaced the attachments in the regular machines. It is a specialty type machine for the women interested in embroidering and trimming along with regular sewing.

a machine that is easy to handle and to operate. You will want one that fits your sewing needs and that is easy to maintain and keep in running order.

Freeze sliced chicken or turkey leftovers for sandwiches.

Every electrician needs CHANNELLOCK pliers

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Look for the Channellock line when you're shopping for hand tools. Channellock pliers offer features that you can't get with other makes. And when you buy a Channellock plier, ask to see the full line—you'll find a style and model to do any job better.

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CHAMPION DEARMENT TOOL CO.
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for Junior Partners

Hi!

I used to think that a New Year's Resolution had to be something profound. So, instead of making up my mind to do some simple thing I could do, I'd get so fouled up in the resolution that no result came of it.

Nowadays, I look at it a little differently. The first thing I try to find is something I think I can do. Then, I go ahead and try to do it. And it usually works! Sure, the resolutions may be smaller, but more of them get done. And when they're all added up, a lot of small things can make a pretty big total.

It's something like a big dinner —you take it in small bites. But when the meal is over, you find you're full and satisfied. Try to make some "bite-size" resolutions for yourself this year.

Kenneth V. Anderson

Tops in the Nation

College Scholarships Awarded to Six Farm Boys

Winners from 43 states—including 36 boys and seven girls—had a trip to the 32nd National 4-H Club Congress in Chicago, with all expenses paid, as recognition of their electrical prowess. All of them were honored guests at a banquet at which six of them were singled out as national winners. These six received an additional award of a $300 college scholarship.

And what a gala event it was. The banquet hall at the Conrad Hilton Hotel was crowded by the winners and their well-wishers, 4-H Club leaders, extension agents, representatives of the power suppliers from all over the country, and even "Kukla, Fran, and Ollie", who provided entertainment. The scholarships were presented by Dr. John A. Hutcheson, vice president in charge of research for Westinghouse Electric Corp.

The 4-H Farm and Home Electric Program is conducted by the Cooperative Extension Service, with awards provided by the Westinghouse Educational Foundation. This year's six national awards make a total of 99 college scholarships presented by Westinghouse in the 4-H program.

The six electric program national winners were chosen from among some 100,000 boys and girls who participated in the program this year. Here is their record of achievement.

Six national winners in the Westinghouse 4-H Farm and Home Electric Program discuss a "better wiring" display. The 4-H lads who won top honors and $300 Westinghouse scholarships among some 100,000 participants in the electric program from coast to coast are, left to right: Leon C. Minor, Adger, Ala.; Marvin D. Harris, Hollister, Calif.; Gordon H. White, Bailey, Miss.; Henry E. Tietje, Gardnerville, Nev.; Gary N. Hoover, Belmont, Ohio; and Cliff Allen Cremeans, Midkiff, W. Va. The "better wiring" display was built by Gary Hoover as part of his electrical project.

Leon C. Minor, 17-year-old winner from Adger, Alabama, rebuilt a broken-down corn sheller into an efficient machine that operates faster than one man can feed it. He also built his own bench saw, yard light, grindstone, corn crusher, ice cream freezer, food chopper, water warmer and several table lamps. Leon, last month, was elected president of the Jefferson County 4-H Council. He was voted the best all-round 4-H'er in his county in 1952 and his teachers recently named him the "best citizen" of his high school. Leon has a perfect attendance record at church for the past 14 years.

Marvin D. Harris, 15, of Hollister, California, has specialized in repairing and building radios. He has his own repair shop, and is experimenting with a radio using transistors. He also has made a generator, installed a time clock for pumping water to his cattle, designed three radios, and has completed 13 club projects and given 38 electrical demonstrations. Marvin has been a reporter and assistant leader of his local club.

Gordon H. White, 18, of Bailey, Mississippi, has remodeled his basement into a workshop and built a grain and hay elevator, corn sheller, brooder, egg tester, water warmer, and many other electrical products. He has given 27 demonstrations, was county winner for the last two years in the Farm and Home Electric

Program, district winner in 1951 and state winner in 1952. Gordon is president of his 4-H Club and Junior County Council. He formerly was president of his high school senior class and now attends Mississippi State College.

Henry E. Tietje, 19, of Gardnerville, Nevada, has installed a pump to bring water to his home and farm buildings, made yard and flood lights, table lamps, chick brooders, installed a hay elevator and an arc welder, and built a two-car garage and a workshop equipped with power tools. For the last two years Henry has won his County Achievement award and, in the same period, was district and county electric project winner. He has presented 13 talks on electrical uses on the farm and in the home, including one radio appearance and has written 14 articles. He was vice president of his local club in

Names and Addresses of 4-H Farm and Home Electric Program Winners

State	*Name of Winner*	*Address*
*Alabama	Leon C. Minor	Adger, Rt. 1
Arkansas	Tom Henry Burgess	Pottsville
*California	Marvin D. Harris	Hollister, Star Route
Colorado	Marie E. Klusman	Flagler
Connecticut	James M. Parker	East Lyme
Florida	Glen Williamson	Wildwood, Rt. 1, Box 130
Georgia	Hazel M. Langley	Loganville, Rt. 2
Idaho	Ellic Bunney	Princeton
Illinois	Donald B. Plock	LaSalle, Rt. 1
Indiana	Dale Bowman	Huntington, Rt. 5
Iowa	Daryl Noble	Hawarden, Rt. 3
Kansas	Alice L. Heim	Leavenworth, Rt. 4
Kentucky	Louis Ewbank	Warsaw
Louisiana	David A. Farmer, Jr.	Shreveport, Rt. 2, Box 814
Maine	George A. Albert	Eagle Lake, Box 135
Maryland	Robert L. Hutchins	Owings
Massachusetts	Robert V. Chisholm	West Bridgewater, 218 East St.
Michigan	Robert Sargent	St. Clair, Rt. 1
Minnesota	Willis G. Schoemaker	Kasota, Rt. 1
*Mississippi	Gordon H. White	Bailey, Rt. 1
Missouri	Howard Brooks	Laddonia, Rt. 1
Montana	Elsie L. Johnson	Evaro
Nebraska	Walter Harold Schmidt	Gordon
*Nevada	Henry E. Tietje	Gardnerville
New Hampshire	Rance G. Collins	Greenland
New York	Frederick W. Durkee	Clifton Springs, Rt. 2
North Carolina	Joan Carol Coltrain	Williamston, Rt. 1
North Dakota	Alden J. Flakoll	Forbes, Rt. 3
*Ohio	Gary N. Hoover	Belmont, Rt. 1
Oklahoma	Johnny Ray Hubbard	Crawford, Star Route
Oregon	Larry A. Maguire	Portland 1, 11650 S.W. Breyman Ave.
Rhode Island	Wallace S. Vanderford, Jr.	Westerly, Box 72
South Carolina	Billy Hill	Abbeville, Rt. 1, Box 7
South Dakota	John A. Pollard	Mt. Vernon, Rt. 2
Tennessee	John P. Sallee	Murfreesboro, Rt. 2
Texas	Murray Milner, Jr.	Brownwood, 1027 LaMonte
Utah	LaVere W. Rawlins	Lewiston
Vermont	Bryce C. Elliott	Barton, Rt. 1
Virginia	Betty McCall	Meadowview, Rt. 1
Washington	Elnora J. LeGrant	Opportunity, Rt. 2
*West Virginia	Cliff Allen Cremeans	Midkiff
Wisconsin	Robert Goehl	Janesville, Rt. 1
Wyoming	Dewey A. Baars	Keeline

*Denotes National Winner

VOGEL

FROST-PROOF HYDRANT

- Will never freeze when properly installed.
- Running water available all year 'round:
  - To reduce fire hazards
  - To supply livestock needs
- Over a million Vogel Frost-Proof Closets and Hydrants have been sold.

The handle in this position shows you that the water is positively shut off. A leaking hydrant is sure to freeze in winter.

For information, see your nearest Plumbing Supply House—or if you write us direct, state the county in which you are located.

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INFORMATION
Service for the Reader

As a reader of ELECTRICITY ON THE FARM Magazine you are entitled to our information service free of cost. Here is how it works.

Whenever you are seeking information about any piece of equipment or material, first look through the advertisements in this issue. They are your best guide.

Then, if you do not find what you want, just use the blank below to tell us your problem and we will see that you get the information you want. That's all there is to it. Easy, simple, and it costs nothing.

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FIGHT INFANTILE PARALYSIS

JANUARY 2-31

1951 and a leader this year.

Gary N. Hoover, 18, of Belmont, Ohio has built electrical equipment to increase farm production. His crop dryer permits an early harvest and eliminates much of the bad weather hazard, while a brooder is helping save many pigs. He also has installed a portable grain and hay elevator, ventilation fan, and a shop lamp. Gary has presented many electrical demonstrations and was a member of the state champion demonstration team this year. He-has won three 4-H medals, four scholarships, and received a pin for the best report in the Farm and Home Electric Program of his county in 1952. As a junior leader, he organized and conducted recreational programs at meetings, 4-H camps and at his own club sessions. Gary now attends Ohio State University.

Cliff Allen Cremeans, 16, of Midkiff, West Virginia, has applied many electrical conveniences on his parents' farm, such as a hotbed, plant booster, chick brooder, heat lamp, door bell system, electric fence tester, outdoor and workbench lights, and a water warmer. He also built a wiring board and a model electric house to give numerous demonstrations and teach craft classes, both local and statewide. Cliff completed 15 club projects, won two state scholarships and received the tri-state and state fair awards in farm electrification.

These six national winners have every right to be proud of their accomplishments. And so do the other 37 state winners. They all have gained, measurably from their own efforts. We wish to extend our congratulations to all of them.

Pampered Calves

Scours can easily be controlled, and the chilling of calves can be prevented in extremely cold weather, according to Mr. Walter Bee of Bethel, Ohio. He has an insulated air-conditioned calf barn! The health of dairy calves is very important and this house seems to be a very inexpensive way to have ideal living conditions for the calves.

The insulation consists of 3" of rock wool in the ceiling and in the walls which, of course, seals out the hot weather in summer and holds in the heat during the winter. The three heat lamps are used only when the weather is cold out of doors and the infrared lights are needed to prevent the calves from chilling. The ventilating fan is controlled by a thermostat which cuts it off when the air temperature in the calf barn falls below 50°. A 10 minute interval timer is used in series with this thermostat, so the fan can be operated one minute out of ten, or any combination of minutes up to ten. This, of course, makes it possible to regulate the amount of air exhausted from the house. The fan is also used in the summer to assist in cooling the building.

According to the College Experiment Station at Athens, Georgia, "Where hatching eggs were stored at a temperature of 55° F and at a relative humidity of 60 to 80 percent, it was found that their hatchability was not affected."

The electric generators needed to operate a single modern super bomber airplane would be able to furnish enough power to light the homes of a village with a population of 120. All in all, such a modern aircraft may carry as many as 250 electric motors varying in weight from 1 to 50 lbs.

SAVE MONEY WITH Paragon VENTILATION CONTROL

ONE FAN DOES more than TWO! with the Paragon

DOUBLE-PROTECTION SYSTEM

- Protects against dangerously low temperatures
- Protects against excessive moisture condensation

There's nothing like the Paragon Ventilating-Control System for all farm ventilation...dairy barns... laying flocks . . . broiler flocks. Easy and inexpensive to install and adjust. Model JW Type M Timer - only $14.75

Send for FREE Information

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1654 12th St., Two Rivers, Wis.
Please send me information on Ventilation Control ☐ Poultry Switches ☐

Name.....

Box No.....RFD.....

Town.....State.....

MAKE MONEY FILING SAWS

Earn up to $3 or $4 hour spare time filing saws for neighbors with electric machine. No experience needed to turn out perfect cutting saws with Foley Saw Filer. FREE BOOK. FOLEY MFG. CO., 117-4 Foley Bldg., Minneapolis 18, Minn.

MAKE YOUR OWN WATER SOFTENER

We tell you how, furnish blue printed shop drawings and material at wholesale. You assemble and install. Write for complete details. Savings surprising.

WEBB MFG. CO. Parkville, Mo.

EVERSTOPTOTHINK?—There are ONLY two times in your life when you can't understand a woman—that's BEFORE and AFTER you marry her. Reminds us of a comment made to us by an old gent down our street. "Son," said he, "there's ONLY two ways to handle a woman—but NOBODY knows what they are." Along the same line of thinking THIS caustic compilation of facts comes from Ma Larkey. Sez she, "When it comes to wimmin, fellers who have money to burn USUALLY meet their match." . . . . Ad in a Chicago Trade Journal—WANTED: models who don't need them to pose in girdles . . . . The game of GOLF has been likened to INCOME TAXES—you drive hard to get up to the GREEN and finally end up in the hole . . . . SODDEN THOUGHT: A man CAN be MONEY-MAD and STILL not be a MISER. We know a fellow who hasn't any money—and THAT'S what he's mad about . . . . Fred Allen sez that when COLOR TV arrives CBS has arranged to bring out a BLOODSHOT EYE (its trademark) for AFTER midnight shows . . . . New World Headline—"ADAM'S FIRST DAY LONGEST." No Eve . . . . OVERHEARD: "Great Scott, Bill, I've forgotten who wrote 'Ivanhoe'". "Charlie, I'll tell you if you will tell me who the dickens wrote 'Oliver Twist'". (Caw! Caw!) . . . . LATENT THOUGHT: About the time you decide to make the MOST out of life, MOST of it is gone . . . . If IGNORANCE is SUPPOSED to be BLISS, we know a lot of people who SHOULD be JUMPING for joy . . . . One of the things that puzzle MOST married men is WHY every bachelor ISN'T rich . . . . From QUOTE comes the SNICKERSNORT-OF-THE-MONTH and the story of John Donaldson, a retired New York Police Department patrolman, who has a large collection of police shields. One is a blank gold badge, previously owned by a character who explained, just before he was hustled off to Bellevue back in '27, "Of COURSE, there's NOTHING on it! I SAID I was with the SECRET SERVICE!" . . . . PARTING THOUGHT: TOLERANCE is many times the uncomfortable suspicion that the OTHER fellow MIGHT be right AFTER ALL . . . . Your pun-peddler—*DUFFY.*

Busy Motor

This ¾ HP motor is made to do double duty in the garage-workshop of dairyman Millard Smith, Bennington County, Vermont. One end of the shaft runs his power drill. The other runs the compressor, mounted behind the motor, off an old refrigerator. Its ability to work up 125 pounds of air pressure nicely handles the tire needs of car, truck, and the tractor. Unless

it's a job taking only a few seconds, Smith slips off the compressor belt while drilling. When using the compressor, he slips off the drill belt. Tip of the motor shaft also takes an attachment for running an emery wheel.

Bolt and Nut Defined

A bolt is a thing like a stick of hard metal such as iron with a square bunch on one end and a lot of scratching wound around the other end. A nut is the same as a bolt only just the opposite, being a hole in a little square of iron sawed off short with wrinkles around the inside of the hole.

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Home Milk and Cream Pasteurizer
CHECK THESE OUTSTANDING FEATURES
• Pressure Vacuum principle assures pure, safe pasteurization equal to best commercial standards.
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QWIK-WAY is fully GUARANTEED.
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America's Leading Grain Roller.
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Sizes 25 to 2500 bu. hourly.
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Take the FREEZE out of WINTER
THERMOTAPE
Thermotape prevents costly freeze-up of water pipes, pumps, etc.—even at 50° below zero. (Write for free literature about its many uses.) 100% safe and sure. 20 ft., $6.15; 40 ft., $9.75; 60 ft., $13.35. Thermostat for automatic, economical operation: $5.95.
Automatic Watering Fountain Plus Optional Anti-Freeze Protection
Best fountain available: fault-free, rust-proof to last for years. Heater keeps water from freezing at zero. Fountain, $6.95. Heater, $3.20. Both, only $9.95.
Automatic Water Warmers
It's cold water, not cold weather, that retards growth, reduces production. $-6 warmers insure drinkable water. FOR POULTRY: 150 watts, $5.55; 250 watts, $6.30. FOR STOCK: 250 watts, $7.50; 500 watts, $9.60 (with copper float, $10.90).
IF YOUR DEALER DOESN'T HAVE IT, WRITE . . .
SMITH-GATES CORP. DEPT. A1 PLAINVILLE, CONN.

FUN FOR ALL—the whole family can take part in this contest. CASH PRIZES will be awarded for the best suggestions for a last line to complete the verse at the bottom of this page.

What Would YOU Say?

Rhyme Contest

RULES—JANUARY CONTEST

Seven cash prizes will be awarded for the best last line to complete the verse in the coupon below. Your suggestion should rhyme with the second line.

The first prize will be $25 cash; the second prize $10. In addition, five consolation prizes of $3 each will be awarded for the best last line furnished.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent may enter but each contestant may submit only one line.

Question "A" must be answered.

Entries must be sent to the Contest Editor, ELECTRICITY ON THE FARM Magazine, 8 So. Dearborn Street, Chicago 3, Ill., before February 10.

The decision of the judges is final and all entries become the property of ELECTRICITY ON THE FARM Magazine.

Winning names and entries will be announced in the April 1954 issue.

Send your entry on the coupon or make out a similar form on a plain sheet of paper or government postcard.

Said John to Joan one evening,
I want you for my wife,
With a complete electric kitchen, John,
? ? ? ? ? ?

My suggestion for a fourth line to the above verse is:

.....

(A) Do you have an electric pump to supply running water in your home?..... How long has it been in service?..... What is the capacity?..... If your pump supplies water outside the home, list the uses.....

.....

.....

My name is.....

R.F.D.....Post Office.....

County ..... State.....

Awards for October Contest

Buttons were something one sewed on
When Mammy and Pappy were kids
But since Edison made them to push on
? ? ? ? ? ?

The Winning Fourth Lines

FIRST PRIZE—$25 CASH

"Hand labor their pushing forbids."

Virgil W. Maddox
R.F.D. 1
Mason, Ohio

SECOND PRIZE—$10 CASH

"They ice our foods and warm our grids."

Mrs. S. E. Bishop
R.F.D. 1
Rudd, Iowa

Five Consolation Prizes—$3 Each

"The 'push on' the 'sewed on' outbids."

Gregory Gasser
Muenster, Saskatchewan
Canada

"Those gadgets will do what one bids."

Rowena Taylor
R.F.D. 1
Van Alstyne, Texas

"Instant power does what one bids."

Gladys M. Ryan
R.F.D. 5
Enosburg Falls, Vermont

"They're wired to our gadgets and grids."

John A. Parry
R.F.D. 1
Linwood, Kansas

"The appliance pushbutton out-bids."

Richard P. Vervalin
R.F.D. 1
Drums, Pennsylvania

Honorable Mention

Earl Battist, Waterloo, Wisconsin; Mrs. Willie L. Davis, Guntown, Mississippi; Mrs. Oscar Eidsmoe, Blanchardville, Wisconsin; Mrs. John A. Fritz, Sr., Seymour, Connecticut; Mrs. Fred Goebel, Indianapolis, Indiana; Mrs. Russell Helter, Tippecanoe, Ohio; Mrs. Harold Jarvis, Stockport, Ohio; Earl Hill, Brookwood, Alabama; Mrs. M. J. Kelly, Batavia, New York; Lance Mann, Russellville, Ohio; K. M. McIntire, Sayler Park Sts., Cincinnati, Ohio; H. L. Moorefield, Spencer, Virginia; John A. Palmer, Glenham, New York; Mrs. Philip L. Stiles, Charlemont, Massachusetts; Chester R. Wallace, Warren, Maine; Earl Wood, Pembine, Wisconsin.

Questions and Answers

Water Valve

▶**Question:** *Is there any way that we can shut off the water in our poultry house each night, similar to the way in which we control the hen house lights?*

W. K., New Jersey

▶**Answer:** Yes. You can obtain a valve that is operated by an electric solenoid. This can be connected in such a way that when the poultry house lights go off at night, the valve shuts off the flow of water. You should be able to obtain such a valve from local plumbing dealers.

Milking Machines Dangerous?

▶**Question:** *I would like an electric milker, but have been told they sometimes electrocute the cows. Is this true?*

A. E., Alabama

▶**Answer:** No, an electric milking machine cannot electrocute a cow. It is possible for a fault to develop in the wiring of any piece of electrical equipment. There have been instances where leakage currents energized metallic fixtures which were not properly grounded, and thereby led to accidental electrocution. However, if the stanchions and other metallic objects in a barn are properly grounded and bonded to the grounded side of the wiring system, such possibilities are eliminated. The same holds true of drinking bowls, water piping, and other interconnected metallic objects within the barn. As an added precaution, in some cases a piece of rubber hose is used to break the continuity of the vacuum line between the vacuum pump and the lines along the stanchions. The hose serves as an insulator and keeps current from feeding through the line. Whether or not such an insulating hose is used, the stanchions should all be grounded and bonded to the grounded side of the electric service.

Hot Cord Plug

▶**Question:** *On some occasions I use a short extension cord and the plug end gets very hot. Why?*

N. V. M., Michigan

▶**Answer:** Generally, this is due to poor contact between the prongs of the plug and the receptacle. If the receptacle is old, the spring may be gone from the contacts within it. As a tight fit is not made with the prongs of the plug, arcing takes place. This produces the heat in the cord plug. Have both the socket and the cord plug checked to make sure they are both in good condition.

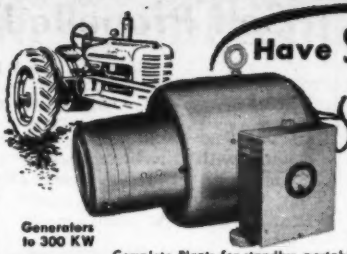
NOTE: It has been called to our attention that the answer given (this appeared in Nov. 1953 issue) was incomplete. Faulty cord plugs have been marketed. In some cases, tests have shown extreme current loss at the plug because of the high carbon content of the reclaimed rubber used in making the shell. If you have a plug that gets hot and the procedure given in answer, above, does not correct it, you should replace it. Use an Underwriter's Laboratories approved plug.

Combining Wire Sizes

▶**Question:** *If you run number 12 wire to a junction box, can you successfully run number 14 wire on to additional lights?*

E. K., Missouri

▶**Answer:** Yes, for long runs such an arrangement is desirable. However, the circuit would still be classed as a lighting circuit and should be fused with 15 ampere fuses.


Have STANDBY POWER when Electricity "BLACKS OUT"

Generators For Tractor or Engine Belt Drive

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Generators to 300 KW

Complete Plants for standby, portable or continuous use, to 50 KVA.

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Big heavy duty—cuts heavy and sheerest fabrics.

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EXPLAINS HOW TO . . .
- reduce unpleasant odors
- increase milk production
- keep cows healthier
- cut down drafts
- prevent barn rot

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BEAUTY APPLIANCE CORP., Dept. V464-A, Racine, Wis.

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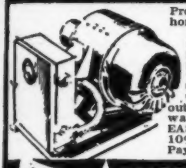

Protect your farm and home NOW with this low-cost stand-by generator that operates from tractor belt or gas engine. Complete with water-proof safety switch. Why wait until your lights go out, stoker, refrigerator, water, radio stops—EASY PAYMENT PLAN. 10% Down—36 Mos. to Pay.

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2 gals. cap. f.o.b. factory $37.50

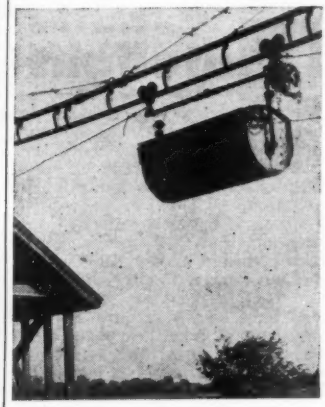
SAFGARD DIVISION
GRAND LIGHT METAL PRODUCTS COMPANY
Melrose Park, Illinois

Self Propelled Litter Carrier

Goes In and Out By Itself

By Charles L. Stratton

There's no pulling and tugging with this litter carrier! It's located on Herb Sweet's Twin Valley Farm at Pepperell, Massachusetts. A small motor pulls the bucket to the pit and back again. Here's the way it works.

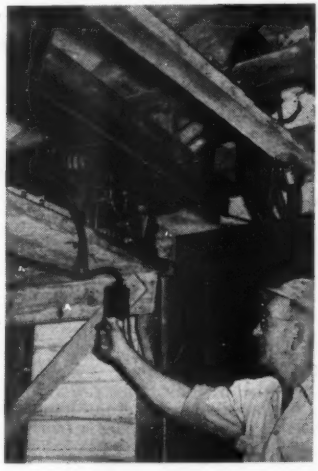


Litter bucket on the way to manure pit. Cable on pit side of carrier is drawing it to pit. Upper cable on right side of bucket returns bucket to barn after it is dumped. String attached directly to bucket dumps it in pit. Endless cable runs through pipe to overhead track.

Sweet mounted a ½ hp motor in the barn and belted it to a speed reducing unit. This is used to drive a double-grooved cable pulley at 75 rpm. A long steel cable, attached to the bucket, runs over the drive pulley, out to the end of the carrier track, over an idler pulley there, and back to the bucket.

Now, start the motor. The cable draws the carrier out to the pit. Pull the trip rope and it dumps. Reverse the motor and the carrier comes right back into the barn. Simple—quick!

Mr. Sweet is well satisfied with his set-up, but warns against speedy operation.



Herb Sweet pulls switch to start overhead motor connected to reduction box alongside. Two overhead pulleys not only feed out cable, but form traction.

Electric "Divining Rod"

An electro-magnetic "divining rod" developed on the Los Angeles campus of the University of California, appears to have placed the quest for underground water on a more scientific basis than that of the willow limb variety.

The new "divining rod" is an application of electromagnetic techniques used in ore prospecting and was developed by Don Hansen of the Institute of Geophysics.

The technique is designed to locate underground water sources in the water table region and has proved accurate in preliminary tests. It uses two wire coils to locate water bearing strata. One coil induces an electric current in the ground. The other measures differences in the induced current as it flows through the ground.

Water-bearing strata, such as tightly packed silt and clay or loose sand and gravel, are identified by their degree of conductivity of the electric current. The conductivity pattern also reveals geological formations such as buried river channels.

Another feature of the technique is that it gives an indication of the quality of the water.

Electric Farm Equipment Buying Guide

An index of Electric Farm Productive Equipment and Home Appliances available from the manufacturers who have advertised in this magazine during the past year. For further information and name of your nearest dealer, write directly to these manufacturers, mentioning that you obtained their name from ELECTRICITY ON THE FARM *Magazine. They will be glad to help you.*

If you want information about equipment that is not included in this index, write to Reader Service Dept., ELECTRICITY ON THE FARM *Magazine, 24 W. 40th St., New York 18, N. Y.*

ALARMS, POWER-OFF
Afcolite Corporation, Chicago 22, Ill.
Lyon Rural Elec. Co., San Diego 12, Calif.

BARN CLEANERS
Badger Northland, Inc., Kaukauna, Wisc.
H. D. Hudson Mfg. Co., Chicago 11, Ill.
James Mfg. Co., Fort Atkinson, Wisc.
Patz Barn Cleaner Co., Pound, Wisc.
Starline, Inc., Harvard, Ill.

BATTERY CHARGERS
Electric Service Systems, Inc., Minneapolis 13, Minn.
General Electric Co., Schenectady 5, N. Y.

BLOWERS, GRAIN OR HAY
Burrows Equipment Company, Evanston, Ill.
Hartzell Prop. Fan Co., Piqua, Ohio

BROODERS, LAMB
Afcolite Corp., Chicago 22, Ill.
H. D. Hudson Mfg. Co., Chicago 11, Ill.
Steber Mfg. Co., Broadview, Ill.

BROODERS, PIG
Afcolite Corp., Chicago 22, Ill.
H. D. Hudson Mfg. Co., Chicago 11, Ill.
James Mfg. Co., Fort Atkinson, Wisc.
Steber Mfg. Co., Broadview, Ill.

BROODERS, POULTRY, BATTERY
H. D. Hudson Mfg. Co., Chicago 11, Ill.
James Mfg. Co., Fort Atkinson, Wisc.

BROODERS, POULTRY HOVER
H. D. Hudson Mfg. Co., Chicago 11, Ill.
James Mfg. Co., Fort Atkinson, Wisc.
Lyon Rural Elec. Co., San Diego 12, Calif.

BROODERS, POULTRY, INFRARED
Afcolite Corp., Chicago 22, Ill.
H. D. Hudson Mfg. Co., Chicago 11, Ill.
LML Engrg. & Mfg. Corp., Columbia City, Ind.
Steber Mfg. Co., Broadview, Ill.

CABLE, SOIL HEATING
General Electric Co., Schenectady 5, N. Y.
Smith-Gates Corp., Plainville, Conn.
Wrap-On Co., Chicago 10, Ill.

CHURNS
Alabama Mfg. Co., Birmingham 3, Ala.
Safgard Div., Grand Sheet M. P. Co., Chicago 8, Ill.

CLEANERS, GRAIN & SEED
Burrows Equipment Co., Evanston, Ill.

CLIPPERS, ANIMAL
Allover Mfg. Co., Racine, Wisc.
Andis Clipper Co., Racine, Wisc.
Sunbeam Corp., Chicago 50, Ill.

CLIPPERS, HEDGE
Sunbeam Corp., Chicago 50, Ill.

COMPRESSORS, REFRIGERATION
Frigidaire Div., Gen. Motors Corp., Dayton, Ohio
Westinghouse Elec. Corp., E. Springfield, Mass.
Zero Mfg. Co., Washington, Mo.

CONTROLLERS, ELECTRIC FENCE
Hal-Dem Electric Fencer Co., Minneapolis 13, Minn.
Shox-Stok, Inc., Wellington, Ohio

COOLERS, EGG
Zero Mfg. Co., Washington, Mo.

COOLERS, MILK
DeLaval Separator Co., Poughkeepsie, N. Y.
Master-Bilt Refrigeration Mfg. Co., St. Louis, Mo.
Star Pump & Cooler Corp., St. Louis 6, Mo.
Westinghouse Elec. Corp., E. Springfield, Mass.
W. C. Wood Co., Ltd., Guelph, Ont., Canada
Zero Mfg. Co., Washington, Mo.

COW TRAINERS
James Mfg. Co., Fort Atkinson, Wisc.

DE-BILLERS
Lyon Rural Elec. Co., San Diego 12, Calif.

DEHORNERS, CALF
Sunbeam Corp., Chicago 50, Ill.

DE-ICERS, STOCK TANK
General Electric Co., Schenectady, N. Y.
H. D. Hudson Mfg. Co., Chicago 11, Ill.
Smith-Gates Corp., Plainville, Conn.
Westinghouse Elec. Corp., Pittsburgh 30, Pa.

DRIERS, CROP
Amer. Crop Drying Equip. Co., Crystal Lake, Ill.

DRILLS, ELECTRIC PORTABLE
Black & Decker Mfg. Co., Towson 4, Md.

ELECTRODES, WELDING
General Electric Co., Schenectady 5, N. Y.
Harnischfeger Corp., Minneapolis 8, Minn.
Lincoln Electric Co., Cleveland 17, Ohio
Westinghouse Elec. Corp., Pittsburgh 30, Pa.

ELEVATORS, PORTABLE
Burrows Equipment Co., Evanston, Ill.
James Mfg. Co., Fort Atkinson, Wisc.
LML Engrg. Mfg. Corp., Columbia City, Ind.

FANS, BARN & POULTRY VENTILATING
Amer. Mach & Metals, Inc., E. Moline, Ill.
Argus Mfg. Co., Chicago 51, Ill.
Hartzell Prop. Fan Co., Piqua, Ohio
H. D. Hudson Mfg. Co., Chicago 11, Ill.
Ilg Elec. Vent. Co., Chicago 41, Ill.
James Mfg. Co., Fort Atkinson, Wisc.
Radex Company, Hudson, Wisc.

FANS, CROP DRYING
Amer. Crop Drying Equip. Co., Crystal Lake, Ill.
Hartzell Prop. Fan Co., Piqua, Ohio
Ilg Elec. Vent. Co., Chicago 41, Ill.

FEED CART, SELF-UNLOADING
Booms Silo Company, Harbor Beach, Mich.

FEEDERS, AUTOMATIC POULTRY
James Mfg. Co., Fort Atkinson, Wisc.

FREEZERS
DeLaval Separator Co., Poughkeepsie, N. Y.
Frigidaire Div., Gen. Motors Corp., Dayton, Ohio
General Electric Co., Louisville 2, Ky.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.
Westinghouse Elec. Corp., Mansfield, Ohio

GENERATORS, STAND-BY
Fairbanks, Morse & Co., Chicago 5, Ill.
Katolight Corp., Mankato, Minn.
Pioneer Gen-E-Motors Corp., Chicago 39, Ill.
Winpower Mfg. Co., Newton, Iowa

GLUE POTS
Black & Decker Mfg. Co., Towson 4, Md.
General Electric Co., Schenectady, N. Y.

GRAIN ROLLERS
H. C. Davis Sons Mill Mchy Co., Bonner Springs, Kans.
W. C. Wood Co., Ltd., Guelph, Canada

GRINDERS, FEED
C. S. Bell Co., Hillsboro, Ohio
Burrows Equipment Co., Evanston, Ill.
H. C. Davis Sons Mill Mchy Co., Bonner Springs, Kans.
Fairbanks, Morse & Co., Chicago 5, Ill.
W. C. Wood Co., Ltd., Guelph, Canada

GRINDERS, TOOL
Black & Decker Mfg. Co., Towson 4, Md.

GROOMERS, CATTLE
Sunbeam Corp., Chicago 50, Ill.

HAY FINISHER
Amer. Crop Drying Equip. Co., Crystal Lake, Ill.

HEATERS, AIR, FAN TYPE
Electromode Corp., Rochester 3, N. Y.
Fairbanks, Morse & Co., Chicago 5, Ill.
General Electric Co., Schenectady, N. Y.
Ilg Elec. Vent. Co., Chicago 41, Ill.
James Mfg. Co., Fort Atkinson, Wisc.

HEATERS, LIQUID, IMMERSION TYPE
General Electric Co., Schenectady 5, N. Y.
H. D. Hudson Mfg. Co., Chicago 11, Ill.
James Mfg. Co., Fort Atkinson, Wisc.
Smith-Gates Corp., Plainville, Conn.

HEATERS, MILKHOUSE
Electromode Corp., Rochester 3, N. Y.
General Electric Co., Schenectady 5, N. Y.
H. D. Hudson Mfg. Co., Chicago 11, Ill.
James Mfg. Co., Fort Atkinson, Wisc.
Radex Co., Hudson, Wisc.
Westinghouse Electric Corp., Pittsburgh 30, Pa.

HEATERS, PUMP HOUSE
Electromode Corp., Rochester 3, N. Y.

HEATERS, STOCK TANK
H. D. Hudson Mfg. Co., Chicago 11, Ill.
Siebring Mfg. Co., George, Iowa
Smith-Gates Corp., Plainville, Conn.

HEATERS, WATER PIPE
General Electric Co., Schenectady 5, N. Y.
Smith-Gates Corp., Plainville, Conn.
Wrap-On Company, Chicago 10, Ill.

HEATERS, WATER (NON PRESSURE)
Babson Bros., Inc., Chicago 23, Ill.
DeLaval Separator Co., Poughkeepsie, N. Y.
Fairbanks, Morse & Co., Chicago 5, Ill.
General Electric Co., Louisville 2, Ky.
James Mfg. Co., Fort Atkinson, Wisc.
Safgard Div., Grand Sheet Mtl. Pdts. Co., Chicago 8, Ill.
W. C. Wood Co., Ltd., Guelph, Ont., Canada.

HOISTS, MILK CAN
DeLaval Separator Co., Poughkeepsie, N. Y.
H. D. Hudson Mfg. Co., Chicago 11, Ill.
Westinghouse Elec. Corp., E. Springfield, Mass.

HOISTS, GENERAL PURPOSE
Flinchbaugh Co., York, Pa.

HYDRANTS, FROST PROOF
Fairbanks, Morse & Co., Chicago 5, Ill.
Flint & Walling Mfg. Co., Kendallsville, Ind.
James Knights Co., Sandwich, Ill.
F. E. Myers & Bro. Co., Ashland, Ohio
Stratoflo Products, Fort Wayne 1, Ind.
Joseph A. Vogel Co., Wilmington 99, Del.
Woodford Hydrant Co., Des Moines 16, Iowa

INCUBATORS
James Mfg. Co., Fort Atkinson, Wisc.

INSECT CONTROL
Gardner Mfg. Co., Horicon, Wisc.
Insect Electrocutor Co., Cincinnati 38, Ohio
Insect-O-Lite Co., Inc., Cincinnati 6, Ohio

IRRIGATION EQUIPMENT
Natl. Rainbird Sales & Eng. Co., Azusa, Calif.

LAMPS, BULBS & TUBES (ALL TYPES)
Afcolite Corp., Chicago 22, Ill.
General Elec. Co., Cleveland 12, Ohio
Westinghouse Elec. Corp., Bloomfield, N. J.

LIGHTING FIXTURES, YARD & BARN
Afcolite Corp., Chicago 22, Ill.
General Electric Co., Schenectady, N. Y.
Steber Mfg. Co., Broadview, Ill.
Westinghouse Elec. Corp., Bloomfield, N. J.

LIGHTNING PROTECTION
Security Mfg. & Contracting Co., Burlington 21, Wisc.

MILKING MACHINES
Babson Bros. Co., Chicago 23, Ill.
DeLaval Separator Co., Poughkeepsie, N. Y.
W. C. Wood Co., Ltd., Guelph, Ont., Canada
Zero Mfg. Co., Washington, Mo.

MIXERS, CONCRETE
Fairbanks, Morse & Co., Chicago 5, Ill.

MIXERS, FEED
Burrows Equipment Co., Evanston, Ill.
C. S. Bell Co., Hillsboro, Ohio
H. C. Davis Sons Mill Mchy. Co., Bonner Springs, Kans.
Fairbanks, Morse & Co., Chicago 5, Ill.

MOTORS
Century Elec. Co., St. Louis 3, Mo.
Fairbanks, Morse & Co., Chicago 5, Ill.
General Elec. Co., Schenectady, N. Y.
Westinghouse Elec. Corp., Pittsburgh 30, Pa.

PASTEURIZERS, HOME TYPE
Electronic Specialities Co., Chicago 10, Ill.
Safgard Div., Grand Sheet M. P. Co., Chicago 8, Ill.
Waters Conley Co., Rochester, Minn.

PIPE, PLASTIC
Yardley Plastics Company, Columbus 15, Ohio

PLANT GROWER, FLUORESCENT
Afcolite Corp., Chicago 22, Ill.

PUMPS, COMPLETE WATER SYSTEM
Advance Pump Co., Berkeley 2, Calif.
Aermotor Co., Chicago 8, Ill.
Berkeley Pump Co., Berkeley 2, Calif.
Deming Co., Salem, Ohio
Fairbanks, Morse & Co., Chicago 5, Ill.
Flint & Walling Mfg. Co., Kendallsville, Ind.
Goulds Pumps, Inc., Seneca Falls, N. Y.
Jacuzzi Bros. Inc., Richmond, Calif.
A. Y. McDonald Mfg. Co., Dubuque, Iowa
F. E. Myers & Bro. Co., Ashland, Ohio
Sta-Rite Products, Inc., Delavan, Wisc.

PUMP-JACKS
Fairbanks, Morse & Co., Chicago 5, Ill.
Flint & Walling Mfg. Co., Kendallsville, Ind.
A. Y. McDonald Mfg. Co., Dubuque, Iowa
F. E. Myers & Bro. Co., Ashland, Ohio

PUMPS, CELLAR DRAIN
Deming Co., Salem, Ohio
Fairbanks, Morse & Co., Chicago 5, Ill.
Flint & Walling Mfg. Co., Kendallsville, Ind.

Goulds Pumps, Inc., Seneca Falls, N. Y.
Jacuzzi Bros. Inc., Richmond, Calif.
A. Y. McDonald Mfg. Co., Dubuque, Iowa
F. E. Myers & Bro. Co., Ashland, Ohio
Sta-Rite Products, Inc., Delavan, Wisc.

PUMPS, IRRIGATION
Advance Pump Co., Berkeley 2, Calif.
Berkeley Pump Co., Berkeley 2, Calif.
Deming Co., Salem, Ohio
Fairbanks, Morse & Co., Chicago 5, Ill.
Flint & Walling Mfg. Co., Kendallsville, Ind.
Goulds Pumps, Inc., Seneca Falls, N. Y.
Jacuzzi Bros. Inc., Richmond, Calif.
A. Y. McDonald Mfg. Co., Dubuque, Iowa
F. E. Myers & Bro. Co., Ashland, Ohio
Sta-Rite Products, Inc., Delavan, Wisc.

PUMPS FOR OIL & FUEL
Deming Co., Salem, Ohio
Flint & Walling Mfg. Co., Kendallsville, Ind.
Goulds Pumps, Inc., Seneca Falls, N. Y.
A. Y. McDonald Mfg. Co., Dubuque, Iowa
F. E. Myers & Bro. Co., Ashland, Ohio

PUMPS, MOLASSES FOR ENSILAGE
Goulds Pumps, Inc., Seneca Falls, N. Y.

REFRIGERATORS, WALK IN TYPE
Zero Mfg. Co., Washington, Mo.

SANDERS
Black & Decker Mfg. Co., Towson 4, Md.

SAW FILING MACHINES
Foley Mfg. Co., Minneapolis 18, Minn.

SAWS, PORTABLE ELECTRIC
Black & Decker Mfg. Co., Towson 4, Md.

SEPARATORS, CREAM
DeLaval Separator Co., Poughkeepsie, N. Y.

SHARPENERS, LAWN MOWER
Foley Mfg. Co., Minneapolis 18, Minn.

SHEARERS, SHEEP
Sunbeam Corp., Chicago 50, Ill.

SHELLERS, CORN
C. S. Bell Co., Hillsboro, Ohio
Burrows Equipment Co., Evanston, Ill.

SOLDERING IRONS
General Electric Co., Schenectady 5, N. Y.
Sunbeam Corp., Chicago 50, Ill.

SPRAYERS, PAINT
H. D. Hudson Mfg. Co., Chicago 11, Ill.

SPRAYERS, LIVESTOCK
H. D. Hudson Mfg. Co., Chicago 11, Ill.
F. E. Myers & Bro. Co., Ashland, Ohio

SPRAYERS, VEGETABLE & FRUIT
H. D. Hudson Mfg. Co., Chicago 11, Ill.
F. E. Myers & Bro. Co., Ashland, Ohio

SPRINKLERS, LAWN
Yardley Plastics Co., Columbus 15, Ohio

STARTING SWITCHES, MOTOR
General Electric Co., Schenectady 5, N. Y.
Westinghouse Elec. Corp., Pittsburgh 30, Pa.

STOCK TANK FLOAT VALVES
H. D. Hudson Mfg. Co., Chicago 11, Ill.
James Knights Co., Sandwich, Ill.
Safgard Div., Grand Sheet M. P. Co., Chicago 8, Ill.

SWITCHES, TIME CONTROLLED
Automatic Elec. Mfg. Co., Mankato, Minn.
General Electric Co., Schenectady 5, N. Y.
Lyon Rural Elec. Co., San Diego 12, Calif.
Paragon Elec. Co., Two Rivers, Wisc.
Westinghouse Elec. Co., Pittsburgh 30, Pa.

THERMOSTATS
General Elec. Co., Schenectady 5, N. Y.
H. D. Hudson Mfg. Co., Chicago 11, Ill.
James Mfg. Co., Fort Atkinson, Wisc.
Lyon Rural Elec. Co., San Diego 12, Calif.
Smith-Gates Co., Plainville, Conn.
Wrap-On Company, Chicago 10, Ill.

UNLOADERS, SILO
James Mfg. Co., Fort Atkinson, Wisc.
The Patz Company, Pound, Wisc.
Van Dale Farm Machines Inc., Wayzata, Minn.

UNLOADERS, WAGON
Booms Silo Co., Harbor Beach, Mich.
Flinchbaugh Co., York, Pa.

WARMERS, POULTRY WATER
H. D. Hudson Mfg. Co., Chicago 11, Ill.
Smith-Gates Corp., Plainville, Conn.

WATERERS, HEATED, POULTRY
H. D. Hudson Mfg. Co., Chicago 11, Ill.
Smith-Gates Corp., Plainville, Conn.

WATERERS, HEATED STOCK
H. D. Hudson Mfg. Co., Chicago 11, Ill.
Nelson Mfg. Co., Cedar Rapids, Iowa

WATER PURIFIER
Sepco Corp., Pottstown, Pa.

WATER TREATMENT
Deming Co., Salem, Ohio
F. E. Myers & Bro. Co., Ashland, Ohio
Oshkosh Filter & Soft. Co., Oshkosh, Wisc.
Webb Mfg. Co., Parkville, Mo.

WELDERS, FARM SPECIFICATION
General Electric Co., Schenectady, N. Y.
Harnischfeger Corp., Minneapolis 8, Minn.
Lincoln Electric Co., Cleveland 17, Ohio
Westinghouse Electric Corp., Pittsburgh 30, Pa.

HOUSEHOLD EQUIPMENT

AIR CONDITIONERS
Frigidaire Div., G. M. Corp., Dayton, Ohio
General Electric Co., Louisville 2, Ky.
Hotpoint, Inc., Chicago 44, Ill.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.
Westinghouse Elec. Corp., Pittsburgh 30, Pa.

BLANKETS, ELECTRIC
General Electric Co., Bridgeport 2, Conn.
Westinghouse Elec. Corp., Mansfield, Ohio

CLIPPERS, HOME HAIR
Andis Clipper Co., Racine, Wisc.

COFFEE MAKERS
General Electric Co., Bridgeport 2, Conn.
Sunbeam Corp., Chicago 50, Ill.

COFFEE MILLS
KitchenAid Div., Hobart Mfg. Co., Troy, Ohio

DEHUMIDIFIERS
Frigidaire Div., Gen. Motors, Dayton, Ohio
Hotpoint, Inc., Chicago 44, Ill.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.
Westinghouse Elec. Corp., E. Springfield, Mass.

DISHWASHERS, AUTOMATIC
General Electric Co., Louisville 2, Ky.
Hotpoint, Inc., Chicago 44, Ill.
KitchenAid Div., Hobart Mfg. Co., Troy, Ohio
Westinghouse Elec. Corp., Mansfield, Ohio

DISPOSAL UNITS, FOOD WASTE
General Electric Co., Louisville 2, Ky.

Hotpoint, Inc., Chicago 44, Ill.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.
Westinghouse Elec. Corp., Mansfield, Ohio

DRYERS, CLOTHES
Frigidaire Div., Gen. Motors, Dayton, Ohio
General Electric Co., Louisville 2, Ky.
Hotpoint, Inc., Chicago 44, Ill.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.
Westinghouse Elec. Corp., Mansfield, Ohio

EGG COOKERS
Sunbeam Corp., Chicago 50, Ill.

FANS, ATTIC VENTILATION
Ilg Elec. Ventilating Co., Chicago 41, Ill.

FANS, KITCHEN VENTILATION
Ilg Elec. Ventilating Co., Chicago 41, Ill.
Westinghouse Electric Corp., E. Springfield, Mass.

FANS, PORTABLE
General Electric Co., Bridgeport 2, Conn.
Ilg Elec. Ventilating Co., Chicago 41, Ill.
Singer Sewing Machine Co., New York 6, N. Y.
Westinghouse Electric Corp., E. Springfield, Mass.

FILTERS, IRON REMOVAL
Oshkosh Filter & Soft. Co., Oshkosh, Wisc.
Webb Mfg. Co., Parkville, Mo.

FREEZERS, FARM FOOD
DeLaval Separator Co., Poughkeepsie, N. Y.
Frigidaire Div., Gen. Motors, Dayton, Ohio
General Electric Co., Louisville 2, Ky.
Hotpoint, Inc., Chicago 44, Ill.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.
Westinghouse Elec. Corp., Mansfield, Ohio

FRYERS, DEEP FAT
Sunbeam Corp., Chicago 50, Ill.
Westinghouse Elec. Corp., Mansfield, Ohio

GRILLS
General Electric Co., Bridgeport 2, Conn.
Westinghouse Elec. Corp., Mansfield, Ohio

HEATERS, PORTABLE
Burnham Corp., Irvington, N. Y.
Electromode Corp., Rochester 3, N. Y.
General Electric Co., Bridgeport 2, Conn.
Singer Sewing Machine Co., New York 6, N. Y.
Westinghouse Electric Corp., Mansfield, Ohio

HEATERS, WATER
Fairbanks, Morse & Co., Chicago 5, Ill.
Fowler Mfg. Co., Portland 2, Ore.
Frigidaire Div., Gen. Motors Corp., Dayton, Ohio
General Electric Co., Louisville 2, Ky.
Hotpoint, Inc., Chicago 44, Ill.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.
Monarch Range Co., Beaver Dam, Wisc.
Sepco Corp., Pottstown, Pa.
Westinghouse Elec. Corp., Mansfield, Ohio

HEATING PADS
General Electric Co., Bridgeport 2, Conn.
Westinghouse Elec. Corp., Mansfield, Ohio

HOT PLATES
General Electric Co., Bridgeport 2, Conn.
Westinghouse Elec. Corp., Mansfield, Ohio

IRONS, ELECTRIC, DRY OR STEAM
General Electric Co., Bridgeport 2, Conn.
Singer Sewing Machine Co., New York 6, N. Y.
Sunbeam Corp., Chicago 50, Ill.
Westinghouse Elec. Corp., Mansfield, Ohio

IRONERS
Frigidaire Div., Gen. Motors Corp., Dayton, Ohio
General Electric Co., Louisville 2, Ky.
Hotpoint, Inc., Chicago 44, Ill.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.

MIXERS, FOOD
General Electric Co., Bridgeport 2, Conn.
KitchenAid Div., Hobart Mfg. Co., Troy, Ohio
Singer Sewing Machine Co., New York 6, N. Y.
Sunbeam Corp., Chicago 50, Ill.
Westinghouse Elec. Corp., Mansfield, Ohio

MOTORIZING SET FOR SEWING MACHINE
Singer Sewing Machine Co., New York 6, N. Y.

RADIATORS, ELECTRIC
Burnham Corp., Irvington, N. Y.

RANGES—COMBINATION
Monarch Range Co., Beaver Dam, Wisc.

RANGES, ELECTRIC
Frigidaire Div., Gen. Motors Corp., Dayton, Ohio
General Electric Co., Louisville 2, Ky.
Hotpoint, Inc., Chicago 44, Ill.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.
Monarch Range Co., Beaver Dam, Wisc.
RCA Estate Appliance Corp., Hamilton, Ohio
Westinghouse Elec. Corp., Mansfield, Ohio

REFRIGERATORS
Frigidaire Div., Gen. Motors Corp., Dayton, Ohio
General Electric Co., Louisville 2, Ky.
Hotpoint, Inc., Chicago 44, Ill.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.
Westinghouse Elec. Corp., Mansfield, Ohio

ROASTERS
General Electric Co., Bridgeport 2, Conn.
Westinghouse Electric Corp., Mansfield, Ohio

SEWING MACHINES
Singer Sewing Machine Co., New York 6, N. Y.

SHAVERS
Electro Tool Corp., Racine, Wisc.
Sunbeam Corp., Chicago 50, Ill.

SOFTENERS, WATER
Deming Co., Salem, Ohio
Fairbanks, Morse & Co., Chicago 5, Ill.
F. E. Myers & Bro. Co., Ashland, Ohio
Oshkosh Filter & Soft. Co., Oshkosh, Wisc.
Webb Mfg. Co., Parkville, Mo.

TIMERS
Paragon Elec. Co., Two Rivers, Wisc.

TOASTERS
General Electric Co., Bridgeport 2, Conn.
Singer Sewing Machine Co., New York 6, N. Y.
Sunbeam Corp., Chicago 50, Ill.
Westinghouse Electric Corp., Mansfield, Ohio

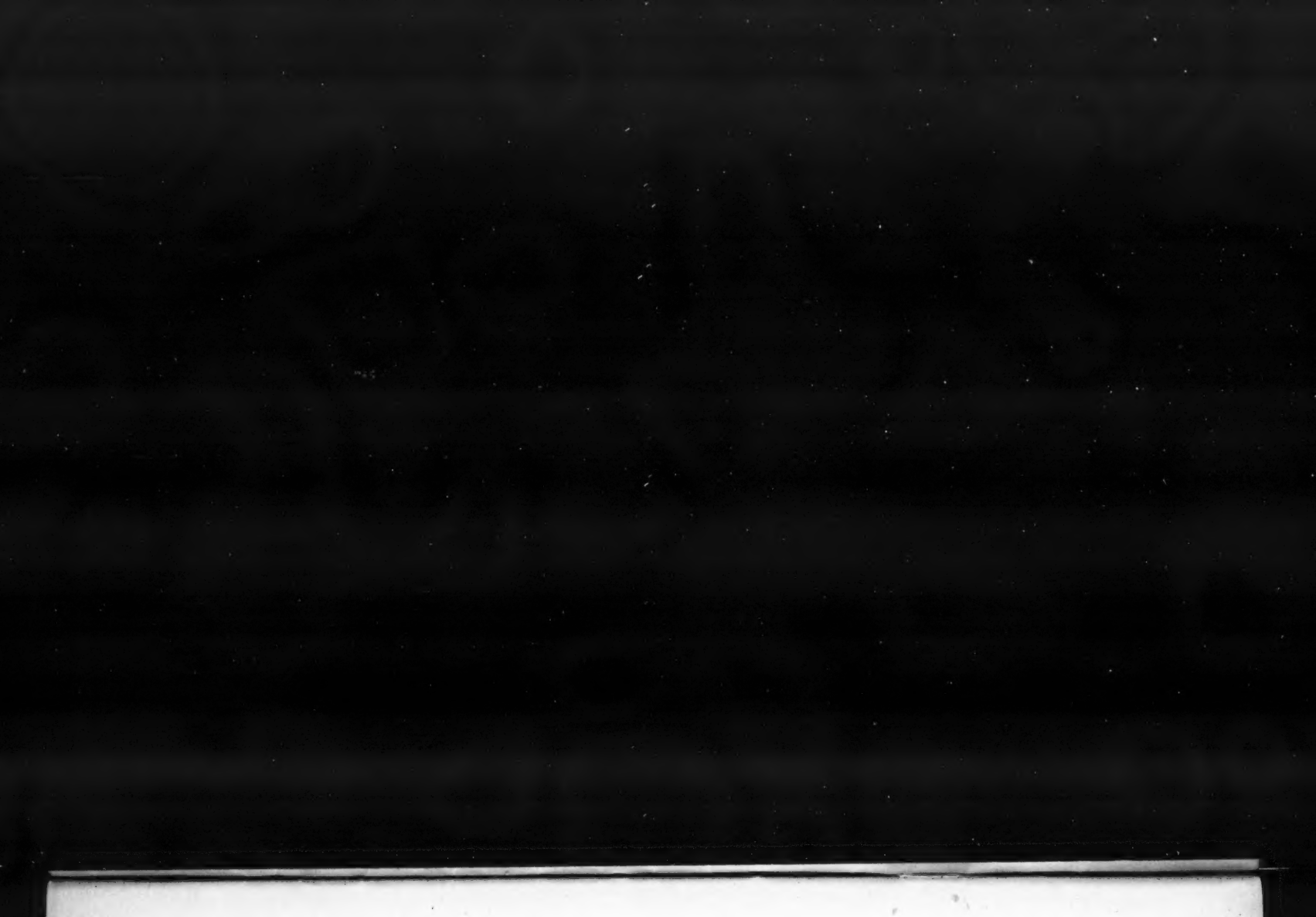
VACUUM CLEANERS
General Electric Co., Bridgeport 2, Conn.
Singer Sewing Machine Co., New York 6, N. Y.
Westinghouse Elec. Corp., Mansfield, Ohio

WAFFLE BAKERS
General Electric Co., Bridgeport 2, Conn.
Sunbeam Corp., Chicago 50, Ill.
Westinghouse Elec. Corp., Mansfield, Ohio

WARMERS, BABY BOTTLE
Sunbeam Corp., Chicago 50, Ill.

WASHERS, CLOTHES
Fairbanks, Morse Co., Chicago 5, Ill.
Frigidaire Div., Gen. Motors Corp., Dayton, Ohio
General Electric Co., Louisville 2, Ky.
Hotpoint, Inc., Chicago 44, Ill.
Kelvinator Div., Nash Kelvinator Co., Detroit 32, Mich.
Westinghouse Elec. Corp., Mansfield, Ohio

WATER CLOSETS, FROST PROOF
Joseph A. Vogel Co., Wilmington 99, Del.



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Automatic Golden Griddle!

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Radio and TV
The Adventures Of
OZZIE and HARRIET
Every Week—see paper for time and station

GRIDDLE-CAKES, hamburgers, bacon, grilled sandwiches—they'll be just right every time on this new plug-in automatic electric griddle! Always the right heat *constantly!*

This is the *brand-new* 1954 Hotpoint pushbutton automatic electric range that gives you recipe-perfect results in *everything* you cook, bake, roast, and broil. Lighted pushbuttons, giant Super-Oven, thrift oven, Calrod® instant heat, automatic electric-clock control. Calrod Golden Fryer available to give you the finest deep-fried foods.

See all these new features and many others in the full line of 1954 Hotpoint Ranges, at your dealer now. Hotpoint Co. (A Division of General Electric Company), Chicago 44.

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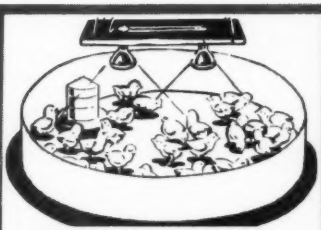
Everybody's Pointing To **Hotpoint** QUALITY APPLIANCES

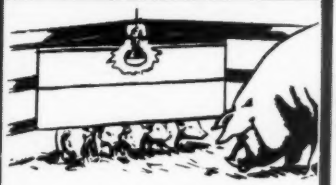
Most Advanced Electric Range Built!

INFRA-RED HEAT LAMPS

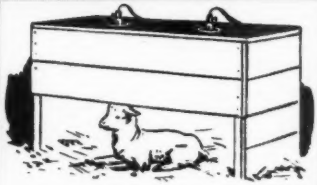
have a hundred farm uses!



CHICK BROODERS
dependable, even heat in any weather!



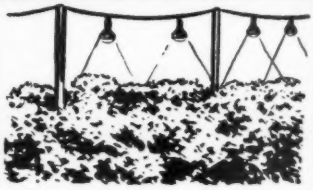
PIG BROODERS
safe, no flames, no fumes!



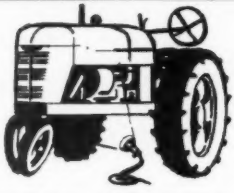
LAMB BROODERS
economical to buy!

SPOT HEATING
for milkhouse, storage rooms, farm shop!

PAIN RELIEF
for aching muscles.



FROST PROTECTION
for tender plants during cold snaps.



ENGINE WARMING
quick tractor and truck starts on cold mornings.

Drying paint, plaster, glue. • Thawing frozen pipes. • Defrosting refrigerators.
Protecting pumps, pipes from freezing.

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